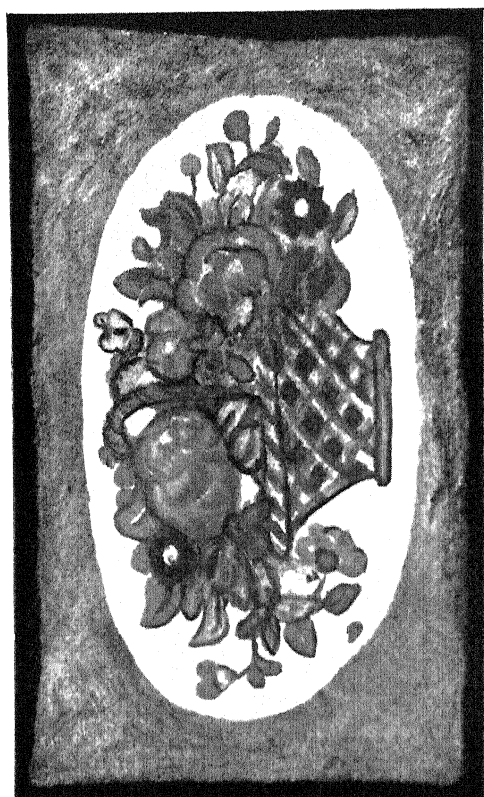


THE CRAFT OF
HAND-MADE RUGS



The Craft of Hand-Made Rugs

BY
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TO
EVERYONE WHO WORKS
FOR THE JOY OF
THE WORKING

INTRODUCTION

THE general interest in handicraft which the Arts and Crafts Movement has aroused has revived certain old-time industries, some of which have been successfully adapted to modern standards of taste. Coming from a background of pioneer and Colonial activity, they first attract us because of their traditional and historical associations, for truly there is nothing new under the sun, though real interest may be awakened when a familiar object puts on a new dress. Our great-grandmothers and our grandmothers have handed down to us these simple crafts, and a revival of them under newer ideals should call out widespread attention from our countrywomen and prove a valuable addition to modern home-making.

These crafts should appeal to the amateur because they require only simple materials and equipment. The left-overs and cast-offs of a household will often prove an ample supply. The tools are also of the simplest make.

In the farmhouses all over the country there

INTRODUCTION

are examples of handmade and homemade furnishings, some of which have a certain attractive quaintness, but most of which fail from lack of careful planning in color and design. The examples of really old Colonial craftsmanship, on the contrary, were almost always good in color and design. Perhaps because our great-grandmothers had in their homes the beautiful furniture of Chippendale, Heppelwhite and Sheraton and the purity of these styles maintained a standard of good taste in that period. In later periods, especially in the two decades before the Civil War there seems to have been a degeneration in these matters, and the finer examples of furniture were replaced by laboriously carved rosewood and black walnut pieces. These are as familiar to us as are their attendant evils, body-brussels carpet of conspicuous scroll pattern and Dresden china figures of complicated workmanship without design.

While it is difficult to explain this loss of critical sense it is perfectly clear that the handicraft of Colonial days was successful because it came through the needs of the Colonial pioneers. These examples of handicraft they made for their own use and to please themselves. As William Morris has expressed it,

INTRODUCTION

“They were made to please the worker.”
Consequently they were made with real joy
and became beautiful as an expression of joy.

It is my purpose in this book to use these
old-time methods of handicraft, to revive and
refresh them by careful planning in color and
design and to add to them the art feeling of
our own times.

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SOME OLD-TIME RUGS

THE CRAFT OF HAND-MADE RUGS

CHAPTER I

SOME OLD-TIME RUGS

FEW articles of home furnishing are more useful or decorative than a well-made and attractive rug, and among the interesting techniques which have been revived from the old-time crafts are numerous hand-made rugs. There are the braided rug, the scalloped rug, the knitted rug, the crocheted rug, the hooked rug, the needle-woven rug, and the Colonial rag rug. The ragbit rug, the tufted rug, and the raveled rug are minor examples. All these rugs fall into two divisions according to the manner of making. In the first division are rugs made with the simplest hand tools and without anything approaching machinery. The braided rug, the scalloped, the crocheted, the tufted and knitted rugs are in this class. The hooked and needle-woven rugs lead

from this division to the more mechanically developed rug, the Colonial rag rug which frankly takes its place as a loom-woven fabric.

The only tool used in making the braided and the scalloped rug, is the sewing needle. The crocheted and the knitted rug are respectively made with the crochet hook and the knitting needles. In this division the rugs are all made without a frame. The hooked rug which follows them in point of development is the first of the hand made rugs to be made on a frame. This wooden frame for the hooked rug is of the simplest construction and yet in it are the beginnings of the primitive loom.

The only other tool used in making the hooked rug is the hook or needle from which it gets its name. The needle-woven rug which follows the hooked rug is made on a primitive loom and shows an interesting example of one of the earlier experiments in weaving. This loom is actually nothing more than a wooden frame, not a bit more complicated than the frame used in the hooked rug. In the method of making the rug lies the main point of difference, which separates it as another and distinct type.

Though the tool in this type of rug is actually a needle it is used in a manner which

corresponds more exactly to the shuttle of a mechanical loom. The comb which is used to press down the threads of the woof develops later into the reed. These two rugs, the hooked rug and the needle-woven rug, stand midway between the rugs made with the simplest tools and the more mechanically constructed rug, the Colonial rag rug.

Thus the methods of making are developed in logical sequence, from rugs made by hand to those made by relatively complicated tools—only relatively because the technique of each one is really simple. Even the loom upon which the Colonial rag rug is made cannot be regarded as anything more than the most primitive of looms compared to the complicated modern power loom.

Because the method of making these old-time rugs is so simple, their design must correspond in type, for without appropriate design these old-time rugs cannot claim our consideration as serious handicraft. Even technical perfection cannot make an attractive rug, if the element of good taste is lacking. Straightforward honesty in design can alone do this, an honesty which acknowledges the limitations in the methods of construction and scorns to get effects by more superficial means.

A taste for appropriate design is sometimes a natural gift. Indeed, I am inclined to think that most people have more esthetic appreciation than they realize. They somehow believe that only those who are professionally and technically trained have any claim to critical sense in these matters. Good taste can be developed by artistic influences. It does not come only as the result of a technical training. The amateur is apt to leave esthetic matters entirely in the hands of the professional worker, whose attitude toward others inside the profession or outside can hardly be called catholic. The standpoint and interest of the amateur must be most seriously considered, for the growth of any movement is dependent on those who work for it for love. And from the ranks of the amateur often come the ablest professionals. The attitude of a professional worker is, in general, influenced by the schools and becomes increasingly academic as it is related to any specialized branch. The enthusiasm of the amateur is often dampened by professional criticism. Any one bringing a fresh attitude of mind toward handicraft should be encouraged, for enthusiasm is too rare and valuable to lose.

The beginner is likely to fail through over-

ornamentation and technical knowledge has a restraining influence in the use of ornament for it teaches what to leave out, just as a discriminating taste will teach what to use. The inexperienced worker usually makes too elaborate a plan, then finds on attempting to execute it, that because of technical limitations many of its ornamental features must be left out.

Handicraft is only beautiful when ornamentally restrained, and meaningless decoration impairs its usefulness. The slogan of the handicrafter is to make the useful beautiful. Service is the master word, "for that which is thoroughly fitted to its use is nearly always beautiful." Beauty may be in perfectly unornamented proportions and real decoration may grow out of structure and be an integral part of it.

A school training in design without direct application to handicraft is useless for it usually consists in giving solutions for problems which do not or could not exist. Esthetic principles may be analyzed and discovered to be as exact as the laws of mathematics. They govern alike handmade rugs and mural decorations.

For instance, the handicrafter who under-

stands the elimination of unnecessary detail and applies this principle will succeed where one with elaborate theories for ornamental motif will fail.

By working out the varied methods of making our old-time rugs we shall find just which kind of design is appropriate for each. Accordingly we shall consider the technical features which are characteristic of each rug and which identify it as a distinct type. These special features make the appearance of each rug characteristic. The inexperienced handicrafter is likely to ignore these features and to apply design from a theoretical standpoint. It may be a design totally unsuited which she or he has seen applied elsewhere and which is therefore believed to be appropriate for any kind. The practical worker uses only the type of design which harmonizes with the process by which the rug is made, and does not indiscriminately imitate the character of another rug.

Suggestions may be received from many sources but if they are to be honestly expressed they must be made practical by adaptation to the work in hand. In other words, any ornamental feature applied to a problem in handicraft must be intimately related to the special

structure of each particular type. Decoration must develop as an integral part of technique. For example the most distinctive feature of the braided rug is developed from the manner in which the three strands of braid are arranged; for by braiding together two strands of a darker color with one of a very much lighter color a characteristic pattern develops when the braids are sewed together in circular rows. By emphasizing this feature in the design the rug gets a charm peculiarly its own and becomes through a technical feature, a rug distinctive in appearance.

Another and similar example is found in the hooked rug. This is made by filling up a foundation of burlap with loops of cloth a quarter of an inch in width. These strips may be either of cotton or wool but in either case they represent a very coarse thread and with coarse thread, a design with a great deal of detail cannot be carried. The most appropriate design for a hooked rug is one with large spaces of different colors in the same degree of tone value. To illustrate: there could be a color scheme in three colors, blue, green and gray. These colors must be present in approximately equal amounts and in the same degree of tone. The blue and green should be

used for the figures of the pattern while the gray should come in as the background. An outline of black and one of white may be added to relieve any monotony. These outlines surround all the figures and separate them from the background. To attempt a more detailed treatment in a hooked rug, would not be successful. The arrangement of large flat color masses, appropriate for the hooked rug, differs very radically from the designs of the Oriental rug-makers. Their rugs are woven of a fine woolen thread in which medium small space arrangements may be carried out, and brilliant colors differing widely in tone value may be used. It would be manifestly impractical to weave these fine designs with the coarse thread of the hooked rug.

We might analyze the method by which each of our old-time rugs is made and find that each has some special technical feature which if emphasized in its plan, would make its appearance distinctive and interesting. The needle-woven rug deserves special mention here because in some respects it differs radically from the other rugs. It originated before Colonial times through the skillful craftsmanship of native American Indian tribes, the Navajos. These Indians still practice their craft and are

making rugs to-day, some of which are as good as the older examples. The technique is quite as good but the color in these rugs has suffered from hasty methods of dyeing the wool. For commercial reasons the beautiful and permanent colors produced from the old dye recipes and handed down, no doubt, from their ancestors for hundreds of years, have been supplanted by the cheap and fugitive coal-tar product. Those which are as good as the antique Navajos are made in black, gray, and in the natural cream-color of the undyed wool.

The actual design has remained unchanged. For being religiously symbolic it is preserved by the tradition of the tribe. Moreover the Indian rug-workers are unconsciously artistic and susceptible to the technical influences of their rugs. Unless very much disturbed or misled by commercial demands, they do not use any design which is foreign to the character of their tools and materials. The design developed through the Navajo method of rug-making, does not imitate natural form. It would not be in good taste to imitate the symbolic design of the Navajo, but there are many geometric forms which harmonize with the character of this useful rug, and being also

abstract, adjust themselves to its technique. The women of our country will be much more interested in using a decorative motif which has some association with their own surroundings than they would be in copying the motif of the most intuitive savage. For this reason, for most of us our own old-time rugs have an intimate attraction which the wonderful Oriental rug cannot have.

A WORD ABOUT DYES

CHAPTER II

A WORD ABOUT DYES

THROUGHOUT these chapters on domestic rug-making, I have given the old and familiar recipes for the colors used in dyeing the materials for the rugs since there seems to be a certain poetic justice in the association of these old-time methods. The recipes are for dyestuffs known as natural dyes. Some of them, however, like the formula for peach-leaf yellow in the chapter on the crocheted rug, might be more specifically classed as "hedge row dyes." Natural dyes consist of coloring matter which comes directly from animal, vegetable, mineral and metallic substances. These pigments are often mistakenly classed together as vegetable dyes. The term natural dye is more inclusive and stands opposed to all pigments produced by artificial means. Artificial dyestuffs are mostly derived from coal-tar and aniline products by analyzing the component parts of a natural dye and by reproducing them chemically.

In recommending the use of the older meth-

ods of dyeing I do not wish to ignore or criticize the progress made by the chemist in modern coloring matters. But for the handier after the natural dye seems to me to have some advantages. First of all, the colors can be used without modification whereas the artificial colors are crude and must all be toned down. A color-blind handier after could get good color with natural dye, but one often thinks that the user of artificial pigments is by nature color-blind.

For example, there is a series of artificial dyes called sulphur dyes because they are chemically derived from the action of sulphur and caustic alkali on organic matters. This is perhaps the most useful series of artificial dyes there is for the handier after, consisting of permanent colors but raw and crude unless toned down. Sulphur blue, for instance, must be modified with its complementary color, orange yellow, as there is no red in this series, before it loses its crudeness. If the natural dyes were used the fabric would first be dipped in blue and then on top of that the orange yellow would be overlaid. The artificial dyes must be mixed together in a powdered state and then used as a single color. It is exceedingly difficult to know what proportion of each color will produce the de-

sired composite. I doubt if these dyes were intended to be modified in this way else the chemist who discovered the series would have provided a more exact recipe for toning them down. However, since they must be toned down, it is better to tone them down by guess-work than not at all.

When sulphur dyes are toned down by overlaying, they strip; that is, the first coating of the dye comes off when the second one is dyed and the fabric remains the second color. There are many artificial dyes which do not strip, such as the artificial indigos and acid dyes for silk and wool. But when these are overlaid the results are not satisfactory, for the composite colors are apt to turn a muddy gray under artificial light. The three complementary colors, orange, green, violet, must probably be produced in the same manner as the primaries, blue, red and yellow.

The dyer in using the natural dye can work as a painter does with a color palette beginning with the three primaries, blue, red and yellow, and from them producing their complementaries, orange, green and violet, and then their further modifications. Natural dyes act according to the accepted theory of color mixing, and when applied to handicraft can be

depended upon to correspond to this theory. As far as I know no one has evolved the theory of color for artificial dyestuffs, so their contrary way of acting has not been scientifically explained. Being artificial they must of course have a code of their own which differs from the theories and laws of natural pigments. They all do extraordinary things under artificial light; most of the blues and greens look so much alike that it is difficult to tell them apart. Some of the acid dyes also get much cruder under artificial light. The sulphur dyes all get duller except the yellow which stays as strong as in daylight. And red, which in the natural pigment gains a finer quality of tone, often turns a dull and uninteresting brown. For this reason it is so difficult to match commercially dyed fabrics. This is why all the large dry goods stores have a gas room where samples may be examined by customers under artificial light. In different materials, as for example silk and wool which match in color in the daytime, there is a change at night, and they do not match at all.

Indigo blue which is the most important of all dyestuffs and the most beautiful blue dye there is, being a natural pigment, can be depended on to keep its pureness of quality.

Indigo blues, and greens with an indigo base do not change under lamplight, gaslight or electric light.

Most yellows in natural pigments soften somewhat at night except under candlelight which is itself almost a yellow light. In fading the artificial dyes are also apt to lose in quality of color, while the natural dyes fade into softer and more agreeable tones. All dye-stuffs eventually fade somewhat. Permanency of color is a relative term, for all colors are effected by long exposure to light and even if the degree of color is not noticeably lessened, a certain grayness comes on it after a time. The natural dyes fade in this way and what they lose in degree of color they gain in quality of tone.

The handicrafter can always test a dyed fabric by thoroughly washing and hanging it, while it is very wet, in the sun to dry. It can be re-wet and hung out again or left in the open for about two weeks and be submitted to all the changes of the weather. By this severe test all the loose dye particles fall off and the color is reduced to the barest possibility of later changes.*

* For artificial pigments, see *Dyes and Dyeing*, by Charles E. Fellew.

While most of the cotton cloth which is used in making the old-time rugs is hand-dyed, some of it is to be bought already dyed. All colored cottons and cotton prints dyed by commercial processes with artificial dyestuffs, must be faded before they can be used. This tones down the colors and gives them more of the appearance of old material. The commercially dyed cottons, however, are not originally as crude in color as wool or silk fabrics. Cotton fiber is dyed with more difficulty than either of these because its physical structure has less affinity for coloring matters. The commercial cotton dyer and printer has special appliances for fixing dyes on cotton fiber; the most important of these is a steaming room where the cloth is kept at a certain temperature in order to assist the dye to attach itself to the fiber, but the amateur dyer does not command these complicated mechanical conveniences for methods of artificial dyeing.

All old cotton and woolen materials which have seen long service from wear, and which have faded as much as they possibly can fade, are most desirable from the artistic standpoint for handicrafters; but the supply of these is apt to give out when rugs are made for sale. Consequently goods must be bought to take their

place. Some of our old-time rugs are to be made of commercial cottons, some of hand dyed cotton and others of old materials. Thus the handicrafter will get a new experience from making each kind.

In Colonial times when rugs were made entirely for home service, they were made of the only kind of materials then available, which were hand-woven woolens and cottons. I have heard some criticism on using new material for our rug-making. Some people seem to think that it is artistically unsound to re-weave materials which have already been woven. They do not object, however, to the use of old home-spuns by the Colonial rug-makers; they say that was an economic necessity. If rugs are to be made for sale now, it is just as much an economic necessity to buy commercially woven and commercially dyed materials to make them with if there's nothing else to use.

If the objection comes wholly from an artistic standpoint I think it should be applied as a more general criticism to our modern and less artistic ways of living. The Colonial handicrafters raised sheep, spun and wove both cotton and wool. Our amateur handicrafters living and working under more modern and more commercial conditions cannot be as fun-

damental in this respect as their ancestors. On this account it does not seem to me as if they must give up humbler kinds of craft which might be a profit and a pleasure to them. If this were true then the only sound standpoint of rug-making is that of the Oriental and of the native American Indian since their rugs are the only ones hand-woven directly from a thread.

The same objection would apply to the modern English appliques, for to be logical these ornamental figures of silk and wool cut out and sewed on either a background of silk or wool are also unsound; they should be figures woven into the body of the fabric as it was originally made. The use of applique could not be justified on the ground of diversity of texture by combining different materials. With the improved hand loom and Jacquard loom the most wonderful mechanical skill is used in weaving fabrics. But alas, these are not always beautiful. It is wise to work fundamentally and thoroughly, but if we cannot do so with absolute thoroughness we must do as conscientiously and as well as conditions will let us. In this way we may learn to do better.

THE BRAIDED RUG

CHAPTER III

THE BRAIDED RUG

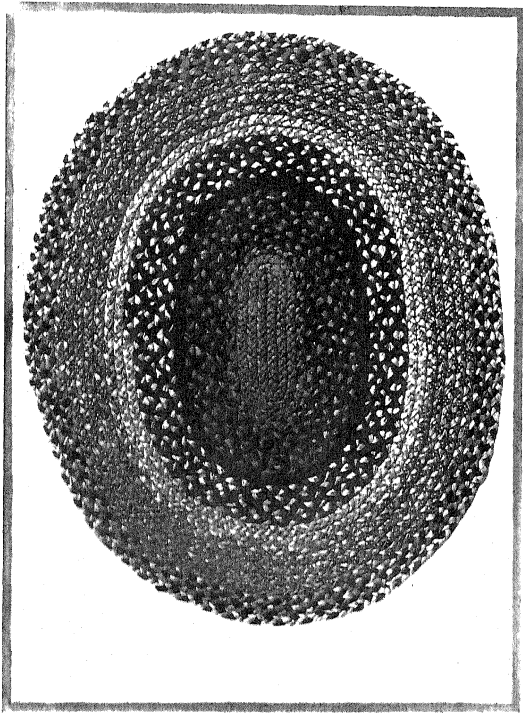
THE braided rug is one of the most serviceable and effective of the needle rugs. It is so simple in technique that any careful needlewoman can make it. And consequently it is the one most frequently seen in the farmhouses in New England and Middle States. Sometimes indeed a complete floor covering is formed by using braided squares fitted together. These coverings are heavier and warmer than rag carpets. They wear longer, too, and lie flatter, keeping down to the floor at the corners and showing no disposition to kick up in the annoying way that rag rugs do.

Braided rugs can be made entirely at home and with otherwise waste material if the worker chooses. The really old ones were made of cotton rags or cotton and woolen mixed; in fact, of anything old or new which came in handy. For the spacious attics of our great-grandmothers furnished inspiration and material enough at any time that one was

needed, and the work is so simple that many a one has been braided during the long winter evenings by the meager light of its contemporary, the tallow dip.

But in these days of no attics and few store-rooms the worker in the cities at least has no treasures of cast-off things to resort to. The basements of the large department stores are the substitute, and these filled with their odds and ends of remnants and marked-down bargains it must be admitted take the place fairly well, though they are not as fascinating as the old-time attics. They have many advantages which are not to be despised: for one thing, goods may be bought in any desired quantity, large or small, and the worker of discriminating taste may select just that which is most suitable to carry out the design which has been planned, for there are many kinds of cotton fabrics that are soft and attractive in coloring and printed with fairly reliable dyes.

Of these the blues of all shades and makes are the most satisfactory. Of other colors the cottons known as the Washington prints made by several Rhode Island mills are dependable. These are a revival of some of the quaint, old-time patterns and they are principally used for making quilted bedspreads.



A MODEL BRAIDED RUG

The braided rug is made in three forms: square, round and oval. An old square rug is sometimes started with a piece of carpet for the center, but this has an incongruous look and is not good from the designer's standpoint. The most desirable shape for the small braided rug is oval, so let us take as an example a braided bath mat in blue and white, size 26 x 32. The tool needed in making the braided rug is a coarse sewing needle suitable for carrying white cotton, size No. 24.

THE MATERIALS

The Washington cotton prints already mentioned are practical for braided rugs because they are soft finished fabrics with little dressing. They retail at from seven to eight cents a yard and are about twenty-four inches wide. Select a medium blue with a small broken-up figure, rather than a figure which is distinct in pattern, like a dot or a plaid, for instance. A floral pattern or sprigged effect is better for the present purpose. Of course any print will do if the Washington prints are not obtainable. Plain colors can be used effectively when combined with figured goods, either by using braids made entirely of plain material or by

braiding two strands of one with one of the other. A rug this size requires nine yards of medium blue cotton print and six yards of unbleached cotton cloth of the cheapest brand.

PREPARATION OF THE MATERIALS

The blue cotton prints and the unbleached cotton cloth must be torn into lengths of one and one-half yards. This is done because these lengths are in turn torn into strands for braiding, and if the strands are any longer they are apt to tangle in the process. First wash all the cloth, each color separately, with warm water and with either a borax or naphtha soap. Rinse the blue cotton print until no more of the dye color runs off, and while it is still wet hang it in the sun to dry. Do not wring it out. Hanging in the sun while wet fades it somewhat, and the washing softens the fabric making it easier to braid. Remember always in selecting and preparing goods for braiding that stiff materials do not crush up nicely in the braids, and as this braided rug is a washable rug too, all likelihood of the colors running in subsequent washings must be done away with by a thorough washing before they are made up.

After the blue calico print is dried, dampen it and press it out. The unbleached muslin must also be washed and ironed to soften it. Now tear both the blue and the white lengthwise—that is, the way of the selvage of the goods—into strips three and one-half inches wide. The cotton prints do not measure more than twenty-four inches in width, so in order to have seven strips of the blue it will be necessary to make each strip a thread or two less than a full three and one-half inches wide.

The width of the unbleached cotton cloth varies with different makes, but whatever its width, it must be torn into strips three and one-half inches wide. If it does not come out exactly never mind; there are always uses for all sorts of left-overs in making other kinds of rugs.

The best way to tear off cotton goods of any kind is the manner in which surgical bandages are torn. Measure across, and divide the entire width of the cloth along the edge into spaces of three and one half inches. Make a cut three inches deep at each measurement. Take up the cut ends, one end in the left hand and another in the right hand, until all cut ends are held in the hands, a number in each hand. Then pull the whole piece apart into strips with continued

sweeps of the hands. If two people tear the goods apart it is much more easily done.

Fold in the torn edges of each strip for one-half inch on each side, then fold these turned-in edges equally to meet in the center. The strips should measure one and a quarter inches when finished. The width may possibly vary a little, but that is not necessarily inconvenient though it should not be narrower than an inch at any point.

After all the strands are folded, iron them and wrap them around pieces of heavy cardboard to keep them smooth and to keep the fold along the edge in place. Wrap each color on a separate card and do not wind too many strips on any one card.

THE DESIGN

A good simple design is planned as follows: The center of seven rows is of the medium blue. Outside of this there are four rows of mixed blue and white, the blue predominating since the braid is made of two strands of blue and one of white. Following this, come four rows of the reverse: that is, of the braid made of two strands of white and one of blue. Next, are two rows all of white, then one row entirely

blue, then two rows more all of white. After this come four rows of a braid composed of two strands of white and one of blue. The finish, or border, is five rows of braid made of two strands of blue and one of white.

This plan gives the rug a dark center surrounded by bands of graduating color going from dark to light. This is followed by an emphatic note of contrast made by the bands or rows of solid color, first white, then blue, then white again; the white should be, of course, the creamy tone of the unbleached muslin. These contrasting bands are followed in their turn by more rows of the mixed braids, graduating this time from light to dark, thus bringing the darker tone on the edge and finishing the rug in the most practical manner. Edges always get more wear and therefore soil more quickly.

BRAIDING THE RUG

In the actual making take three folded strands of blue and holding the ends together, sew them. Pin or tie these at the end where they are sewed, to something heavy so that they may be firm and taut while braiding. Braid them together until within three inches of their ends. Then pin or tie these ends so

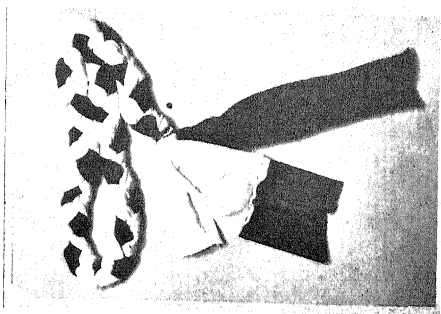
the braid will not unravel. Measure off fourteen inches of it from the end where the braiding was started and double it together to form a loop. Sew this together (over-hand) along the inside edges of the braids, beginning to stitch where the three strands were first over-handed and working down toward the other end of the loop, which is the rounder end, as shown in one of the illustrations. Go back now and take the loose end of the braid and over-hand it round the two first rows and go on thus until counting from side to side seven rows are sewed.

Be careful when rounding the ends of the oval not to full the braid too much nor to hold it too tightly. If the braid is full, the finished rug will ripple on the edges. If on the other hand it is held in too much in the over-handing, the rug will buckle in the center.

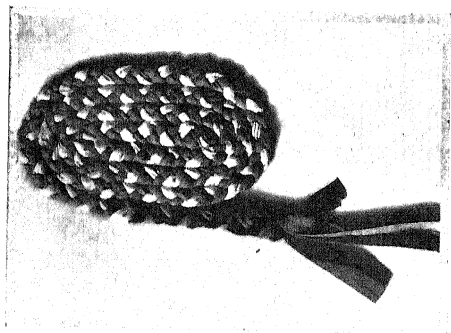
The worker will notice that the sides of the oval are as yet very straight. They will begin to curve out as more rows are added.

These first seven rows form the center of the rug; when they are completed set aside the blue braid.

When starting a braid of different color add it to that already sewed at the curved end of the oval, rather than along its straight side.



THE START OF THE BRAIDED RUG, SHOW-
ING THE OVERHANING OF THE BRAID



THE FIRST SEVEN ROWS, FORMING THE OB-
LONG CENTER OF THE OVAL
BRAIDED RUG

Always begin the rows that are to be continued, on the same side of the rug, as will be seen on examination of the accompanying illustration. If some of the braid leaves a loose remainder at the place for adding a different color, cut it off but do not cut it straight across: unbraid it a bit and then cut the three strands off separately, each at a different point. Sew the ends of the strands of the new braid to these ends. Likewise when adding more strands of the same color or in introducing new colors to lengthen the braid, over-hand these new pieces to the ends of the already braided strand. Let the seams come on the inside of the folded strand where the raw edges will not show.

In braiding the strands it will be found that the ends do not come out evenly. This is because the worker pulls more on one than on the others. There is no objection to this, however, for the seams in the strands must not all come at one point. If they all came together, the braid would bulge and be clumsy at that point. This is the reason for cutting the strands at different points when it is necessary to cut them at all. Sometimes of course a length of braid just finishes the required number of rows, but if it does not, be sure to save

all the clipped-off ends of the strands. One may need even the smallest piece to finish up a row of some desired color.

Lay the rug down on the floor from time to time during its construction, to see that it is keeping its form and also that it is smooth and flat. When the last row of braid required has been over-handed on, sew the ends down as flat as possible on the wrong side of the rug, turning the strands under one by one.

The braided rug of the farmhouse, though substantially made, is not always attractive because it is seldom well-planned. It is usually of a variety called "hit or miss" and it is generally "miss," with a scattered effect resulting. As a matter of fact the braided rug has certain features which are characteristic of it and which consequently distinguish it. But it has remained for the modern handicrafter with a knowledge of design to discover them, to realize their importance, and to use them to advantage. Thus from being an accidental form these features advance to the dignity of real ornament and become a characteristic figure in the design. Being made of three strands of muslin sewed in rows, the braided rug shows a form like a little arrow-head on its surface, which results from the braiding together of two

strands of a darker color with one of a very much lighter tone of the same color, or with a sharply contrasting color. One might choose a medium blue strand, with two strands of white or two strands of black and one of red, according to the color scheme one has planned. The point is that the contrasting colors come together in such a way that they form this little characteristic pattern in arrow-heads as seen in one of the illustrations.

Thus a constructive feature becomes a decorative one as well and a surface pattern occurs from the rug's structure. If the rug were made in any other way this particular effect in surface pattern could not result.

The preparation for making the braided rug, really takes more time and patience than the actual sewing together of the rows of braid, but there is not the slightest use in beginning until all the rug material is in order. It must be all washed, ironed, torn, folded, before one is ready to begin. Once this is done the rest is very simple. The braiding and sewing can be easily done at any time, because like any other needlecraft it does not require special tools and equipment.

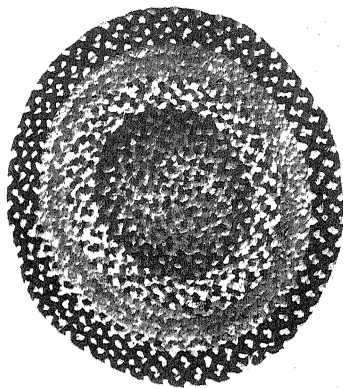
Before doing any work on the rug it is advisable to read over the whole description of the

procedure in order to get a general idea of the subject, then to go back and go over it again, preparing the materials this time and leading up to the final sewing of the braid.

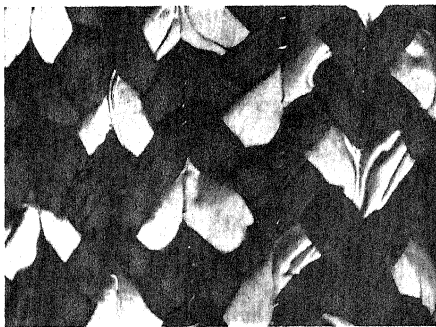
SUGGESTED PATTERN OF DIFFERENT COLORS

A Round Bedroom Rug in Blues and Pinks:
For this rug select figured calicoes, preferably the Washington prints. Wash and iron them as already directed. There are four colors: a medium blue, somewhat grayish in tone if possible; another blue of the same color, about two tones lighter; a medium pink, and a calico with a white ground sprigged with pink and black, the pink predominating.

In starting the round rug begin to turn the braid at once without allowing any length in the center. Begin with five rows of a braid made with two strands of the medium blue and one of the lighter blue. Continue with three rows of braid of two strands of the lighter blue and one of medium pink. Follow these with two rows of braid of two strands of medium blue and one of medium pink. Then add four rows of braid of two strands of medium pink and one strand of mixed pink, black and white.



AN OLD-FASHIONED RUG WITH ARROW-HEAD
PATTERN



SECTION OF PATTERN

Finish with three rows of braid made of one strand each of medium blue, light blue and medium pink. The size of this rug is twenty-six inches in diameter.

An Oval Bedroom Rug in Pinks and Grays:

Another very successful plan for a bedroom rug can be carried out in grays and pinks. These colors should be of the same tone value or degree of color, either in medium pink and medium gray or light pink and light gray. Either the pink or the gray should be a figured calico. Start with a center of ten inches in length with five rows of all gray braid. Continue four rows of braid with two strands of gray and one of pink. Then go on with a braid of two strands of pink and one of gray. Follow these with one row of a braid of two strands of gray and one strand of pink. Then one row of all gray braid. Finish the rug with two rows of braid made of two strands of gray and one of pink. The size of this rug is 23 x 31 inches.

Another plan for the Braided Rug: A less brightly colored rug would be suitable for either a living-room or a hallway. Select a medium green calico and a gray of a somewhat lighter tone. There is a Washington print that works up very satisfactorily in this connection.

It is a green ground with a pattern on it in yellow and black. It is one of the best known of these prints and like most of them it is a really old design which has been revived. Start the rug with a center of seven inches in length and use seven rows of all gray braid. Continue with five rows of the braid made of two strands of green and one of gray; follow these with one row of all green braid. This must be followed by four rows of a braid of two strands of green and one of gray. Then come two rows of all gray braid, next five rows of a braid of two strands of gray and one of green. Finish with three rows of a braid of two strands of green and one of gray. The size of this rug is 26 x 33 inches.

**THE SCALLOPED DOORMAT OR TONGUE
RUG**

CHAPTER IV

THE SCALLOPED DOORMAT OR TONGUE RUG

THE scalloped doormat or "tongue" rug gets its name from the shape of the piece of cloth from which it is built up. It is our second example of a needle-made rug and logically follows the braided rug. It is made with the sewing needle.

Though not as frequently seen as some of our other rugs, it deserves careful attention for its technique is quite amenable to artistic direction. Its tongue-shaped unit or scallop is cut out of odds and ends of woolen cloth, and sewed on a burlap foundation. These scallops should never be made of cotton as cotton does not wear well with this treatment. The more closely woven the fabric of which the scalloped doormat is made, the more serviceable it is. Loosely woven cloth is apt to fray. Old bits of broadcloth are a satisfactory material to use.

The scalloped or tongue-shaped units are sewed on the burlap foundation in precisely the same way in which shingles are laid on the

roof of a house. That is, they begin at the outside edge and work in toward the center. Another illustration of the construction of the scalloped doormat is that of the overlapping scales of the pine cone.

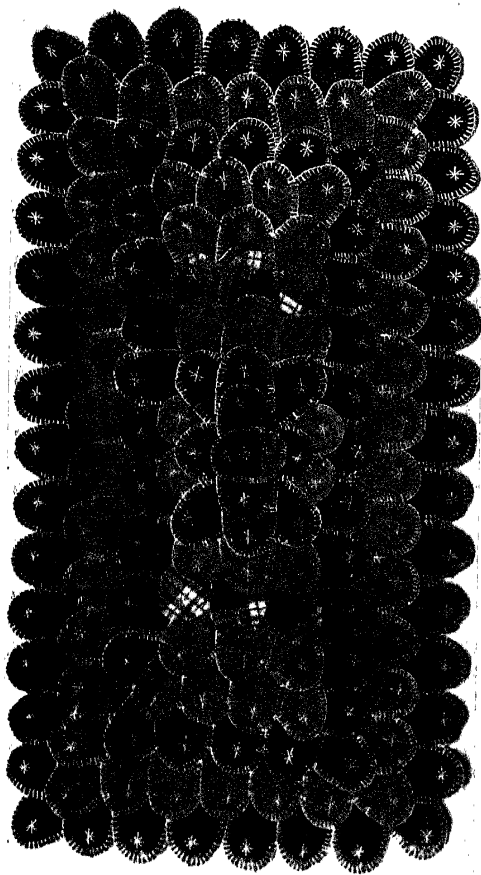
For a rug 4 ft. in diameter, 1 yard red cloth, 2½ yards gray cloth and 2 balls black knitting silk are required.

THE DESIGN

It is a curious fact that the structure of design in handicraft almost always corresponds to some type of growth in nature. In this instance, the structure of a scalloped doormat is identical with that of the pine cone and as the structure of the pine cone is geometric the design of the scalloped doormat will consequently be formal. If surface pattern be developed it must come through the repetition of tone or color value at regular intervals on the structure or line action.

MAKING THE RUG

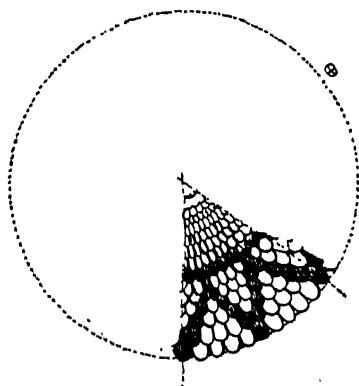
The shape of the unit or scallop may vary somewhat but the elongated form rounded at the edge which coincides to the shape of the scale of the pine cone is most practical, for it



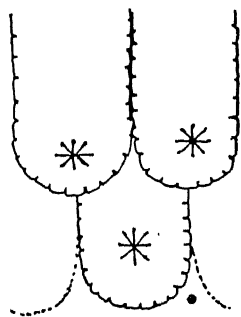
AN OLD-FASHIONED SCALLOPED DOORMAT

has less tendency to turn up and fray. Each scallop must be finished all around with a button-hole stitch before it is sewed down on the burlap foundation. After the scallops are all sewed on, they are held in place on the foundation by a star-shaped stitch.

For this chapter a round mat has been chosen as the model. It is to be made of red



Section pattern for scalloped doormat.



Section of scallops showing alternating placement.

and gray cloth. The red cloth should be prepared according to the directions, given in chapter on the hooked rug, for preparing commercially dyed flannel. Both the red and gray scallops are to be button-holed with coarse black knitting silk and the star stitch is also to be

made with this silk. The design which is shown in the accompanying plan is very easy to work out. The scallops in the lighter value on this pattern correspond to the gray and those in the darker value to the red. Cut the oblong pieces of cloth in two sizes: $2\frac{1}{4}'' \times 3\frac{1}{2}''$ for larger size, and for the smaller, on the scallops near the rug's center, $2'' \times 3\frac{1}{2}''$. Lay them together to round off the edges with a pair of scissors. This same pattern may be carried out in blue and gray and button-holed with white or in medium blue and white and buttonholed with a dark blue. All these colors can be bought in a medium quality of closely woven flannel or cloth. Old green billiard cloth with any closely woven black material makes a charming doormat. The dye recipes for wool in the chapter on the hooked rug may be applied to white cloth, and interesting color schemes produced. Combinations of contrasting colors can be carried out, though the design is more successful when there is not too much difference between the color values. A very attractive rug may be made in two tones of yellow, using the natural dyes recommended in the following chapters: Recipe for iron buff in the chapter on the needle-woven rug, which though it is there used on cotton can in this instance

be also used for wool, and the fustic yellow in the chapter on the batik or wax process which is silk dye and therefore can be used to dye the lighter tone of yellow woolen cloth for the mat.

THE KNITTED RUG

CHAPTER V

THE KNITTED RUG

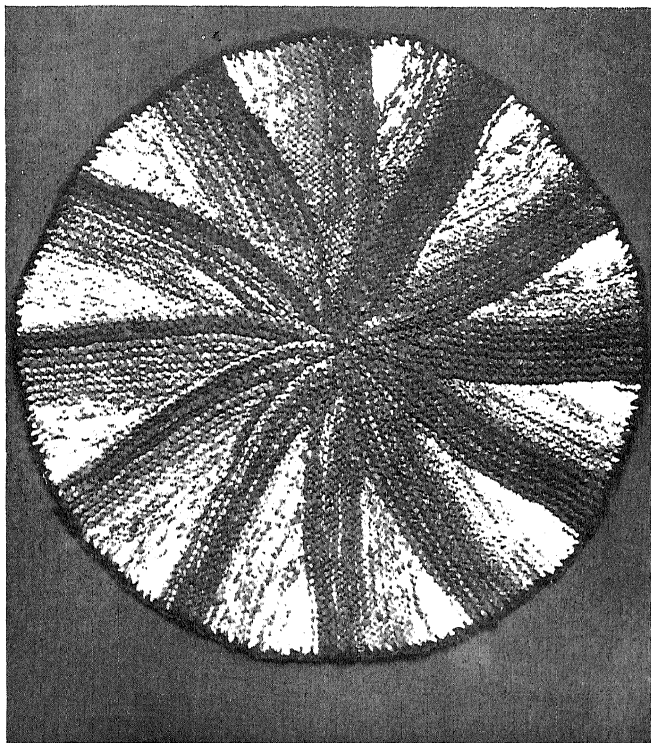
THE knitted rug is another rug which has reached the satisfactory standard of modern craftsmanship and is also a striking example of how successfully a rug based on a humble craft can be made if well-planned. Surely to paraphrase a familiar quotation, "The plan's the thing." The craft of knitting cannot be said to possess any technical difficulties. Almost any one can knit, though to be sure even so simple a performance as this can be done more or less well. But anything that is easy finds inexperienced enthusiasts, so the knitted rug of the hit or miss variety is more frequently met with than one which is carefully planned.

Before the present revival in the handicrafts the old Colonial looms on which the farmer folk did their own weaving were discarded as old-fashioned and cumbersome and so when rugs or carpets were needed and there was no carpet weaver conveniently enough located to weave

up balls of cut rags, the knitting needles were resorted to and the knitted fabric took the place of the woven one.

Like the braided rug, these rugs are made in several shapes. They are square, oblong and round; one sees the angular ones more often than the circular, possibly because the circular form is somewhat more difficult to make. The knitted rugs are also rather heavy and therefore are practical for an entire floor covering. When used for this purpose they are made like runners in any desired length when laid side by side on the floor without being fastened. The lengths are not sewed together or nailed down, so they can be easily taken up and shaken.

The materials generally used for making knitted rugs are old rags of either wool or cotton. This accounts to some extent for their somewhat uncared-for appearance as the design cannot be as well controlled as when just the kind and color of material wanted can be picked out. It requires much ingenuity and experience to make the best of what is in the house, and handicraft produced under such conditions is apt to suffer. Then, too, the preparation of these materials is often careless. They are indifferently cut or torn into strips of varying widths, sometimes even on the bias. This



A MODEL KNITTED RUG, SHOWING HOW DESIGN IS DEVELOPED THROUGH CONSTRUCTION AND TECHNIQUE

lack of care in the preparation of the material of course weakens the knitted fabric and sooner or later a thread will break and become unraveled with disastrous consequences. The experienced worker never takes risks of this kind but prepares all materials with that exacting care which will guarantee the rug a long career of usefulness.

Since the materials from which these rugs are knitted, make a thick thread when cut into strips, the fabric itself is heavy and to make it easier to handle the square and oblong rugs are made in bands from eight inches to ten inches in width, and are afterward sewed together. The oblong rug shown in one of the illustrations is made in this manner. It has a roughly chosen center and a border sewed on each side and at both ends. In the border a simple design has been attempted. It is a band of black interrupted at certain intervals by a bar of color. The idea in this simply planned border is a happy one, for the dark band sectioned by lines of bright color surrounds the hit or miss center, and by holding it in place adds stability to the appearance of the rug. The irregular effect of the center is balanced by contrast with the formal border.

In applying design to handicraft one always

considers the surface of the object to be decorated, as a space for composition in spot and line. In this special case, the entire rug surface is the space for the decorative arrangement. It is a circular space divided into twelve wedge-shaped sections or repeats by the peculiar technique of the rug. These sections are composed of knitted rows which begin at the center of the rug and run out toward the edge so that the effect is that of radiating lines. Decoratively speaking, radiating lines always suggest action, so the rows have a tendency to carry the eye of the observer in a direction of the outer edge of the rug's surface. In this case the action is so strong that an encircling line is especially needed to counteract the effect of the radiating rows and to hold them in the composition space. The encircling line when translated from terms of design to terms of handicraft, becomes the border which the craft worker adds to give the rug a necessary finish.

In the model rug this plan is successfully carried out and the appearance of the rug is improved by the narrow border surrounding it. These points of design may seem somewhat exacting, but in reality no detail is too small for consideration by the careful worker. Everything counts, and it is the attention given

to minor points which distinguish the work of the experienced craftsman.

The type of knitted rug chosen for the model is a round rug because it is much more difficult to make than either of the other shapes, and cotton has been taken as the material in which to make it. This model can be used for either a bedroom or a sitting-room rug. It is designed in two shades of soft green.

If there is one thing above others for the student to remember, it is that in handicraft the conditions under which work is produced seldom repeat themselves. While this is true of any branch of handicraft it is especially true of branches like dyeing and pottery where certain chemical action is involved. Here many new conditions arise, and the original plan of work must often be changed to conform to them. While this makes some difficulties, it also adds charm and interest to each problem. The craftsman who is most successful in the dyer's art is one who possesses most artistic adaptability. The worker will not be discouraged by any new condition which arises, but will seek to adopt it by including it in the original plan, to which it often proves a valuable addition. All handicraft is largely experimental and while help and advice must

sometimes come from outside, each handicrafter will find it more profitable to make original experiments and will in this way discover a peculiar educational value in the work.

THE DESIGN

As the technical problem of the knitted rug is so simple, the design should be made an important feature in order to lift it out of the commonplace and into the rank of dignified handicraft. The design must conform to the structure of the rug and take advantage of its technical peculiarities.

As it is always more interesting to plan a design which has some association with a familiar, natural object, the fruit of the gourd vine has been selected as a suggestion for the surface decoration. In the designer's terms it is the subject-matter or natural prototype which becomes the motif of the design when applied to handicraft. But since good design is not pictorial, the motif must become abstract before it is applied. It therefore only suggests decoratively the natural type because all its relatively unimportant features have been taken out for the sake of decoration. Only too often attempts are made to make a picture in-

stead of an article of handicraft. It is manifestly impossible to reproduce natural form by the craftsman's skill, for many things which can be represented in paint cannot be reproduced in woolen thread. The result is always complicated and inartistic. Decorative art is the interpreter of natural form, not the imitator, and only truly serves the designer's purpose when it offers suggestion for conventional motif to be applied to handicraft.

For this reason, those unfamiliar with applied design need not feel necessarily ignorant if they cannot trace a motif to its source. It takes a practised designer to trace decorative subjects back to their prototypes in nature and one might not be reminded of the markings on a gourd when looking at the design of our knitted rug, yet when attention is called to it we realize that the two have points in common for each have lines which radiate from a center. These lines are respectively the knitted rows of the rug and the structure ribs of the gourd. The rug is a flat object and the gourd has a plastic body but the action of these two sets of lines is the same. It is because they have a certain correspondence of structural points that the surface ornament of the rug is developed from the ornament of the gourd.

The rug is knitted in twelve wedge-shaped sections, and by emphasizing certain parts of these sections its ornamental features correspond to those of the gourd. In knitting the rug, broad bands of dark color are used at intervals in the sections, while the rest of the section is knitted of a shaded thread. This renders the surface markings of the gourd decoration, and the effect can be heightened by using color which is similar to the greenish tones of the gourd. Thus in selecting motif for decoration, it is wise to take suggestions from natural objects which have some structural correspondence to the problem of handicraft in view, and to emphasize further these structural features by correspondence in ornamental features.

TOOLS, MATERIALS, DYESTUFFS, CHEMICALS AND UTENSILS

Tools: The tools for making the knitted rug are a pair of large knitting needles fifteen inches long and one quarter of an inch thick and a large crochet needle of the same size. These can be either of bone or wood. A pair of rubber gloves.

Materials: Materials needed are sixteen

yards of the cheapest grade of unbleached muslin; one bunch of raffia.

Utensils for Dyeing with Indigo: An oaken hogshead or a cider barrel if sweetened by burning sulphur in it, will answer the purpose as a receptacle for the dye. One wooden skimmer, one long stick with a cross-piece nailed on it, for stirring the indigo vat, one small pulley, six yards of hemp cord and an ordinary cloth wringer complete the requisites.

Dyestuffs and Chemicals Needed for Setting the Indigo Vat: One pound of ground indigo; two and one-half pounds of copperas chemically pure, and three pounds of slaked lime.

Dyestuffs and Chemicals for Greening Over Indigo: One ounce of extract of quercitron bark, one pound of washing soda.

Utensils: One five-gallon copper kettle, two wooden sticks to lift the goods and a pair of rubber gloves.

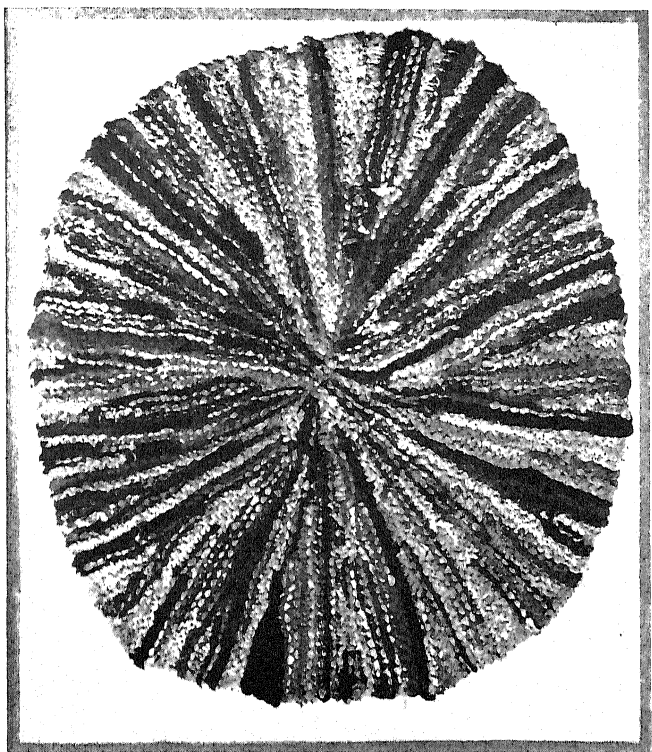
PREPARATION OF MATERIALS

Take sixteen yards of unbleached cotton muslin, and after having washed and ironed it divide it into four lengths of four yards each, tear these four lengths into strips, three-fourths

of an inch in width according to the method described for tearing surgeons' bandages in the chapter on the braided rug (page 41). These strips will be used as thread for knitting the rug. Divide the thread into sixteen equal parts and then wind these parts into hanks being sure to fasten the loops as one would a skein of worsted. Make the hanks about twelve inches long. Eight of them are to be dyed a plain dark green and the remaining eight, a mottled green and yellow.

The eight hanks are to be prepared by a method known to dyers as the reserve method, a process which is used to keep the dye from reaching certain portions of the fabric. The portion which is reserved retains its original color. In this case we wish to have a thread with green and yellow shadings, so parts of the unbleached hanks of thread must first be covered before it is dyed blue with indigo in order to reserve other parts which are afterwards to be dyed yellow. Thus the part of the hank which is not reserved becomes green while the reserve part will remain the unbleached tone, and on being uncovered and immersed in the yellow dye bath, will get its color from the yellow dye.

The hanks of thread kept apart for the mot-



THIS OLD-FASHIONED HIT-OR-MISS KNITTED
RUG SHOWS LACK OF CAREFUL
PLANNING IN DESIGN

tled effect must be wrapped tightly with the raffia. The part covered with raffia must come within three inches of each end of the hank; this leaves six inches of the center wrapped around with the raffia.

When this is done the hanks are ready for the indigo vat, both those that are to be dyed plain green and those to be dyed green and yellow.

In Colonial days our great-grandmothers made their shaded wool by this method. They wrapped part of their skeins of woolen thread with corn husks and tied these about tightly with linen thread to give the necessary pressure. The portions covered with the husks retained the original color of the wool while those exposed became the color of the dye bath into which they were put. Hundred of years before, the ancient Greeks used the same principle to produce undulating lines for borders on their garments by twisting and tying the cloth. Some patterns were even made by knotting the fabric in certain ways.

As the corn husks which our grandmothers used are not a commercial commodity, an available substitute can be found in raffia, which is used by florists for tying their flowers and by the market gardener to tie up asparagus.

This can be had at any firm keeping garden supplies.

Grounding with Indigo and Greening with Quercitron: The material ready for the dye bath must be dyed blue or grounded with indigo before it can be greened with quercitron bark, the yellow dye. When overlaying one color upon another to produce a third, the color which has the darker value must be dyed first. For instance, while dyeing yellow over blue to make green, the blue is dyed first, for though the yellow changes the color of the blue it does not alter the tone value which has already been fixed by the depth of tone in the blue dye.

Dyeing with Indigo and Setting the Indigo Vat: For the craftsman indigo is not only the greatest of all blue dyes, but the greatest of all dyestuffs. It has the invaluable quality of being the only blue dye which does not lose its tone or color value in artificial light. It is a vegetable product and a very beautiful and permanent color which with varied treatments can be applied to silk, wool, cotton or linen, the vat method being preferred for all fabrics.

Indigo in its natural state is insoluble and consequently must be made soluble by certain chemicals called "reducing agents." Indigo dyeing is a process of oxidation and what

actually happens is that the indigo in the vat becomes soluble and loses its color by the use of lime and copperas which dioxidize or reduce it to what is chemically known as indigotin or indigo white. Therefore when the fabric dipped in the vat is first taken out, it is usually a greenish yellow tone. When exposed to the air it rapidly regathers oxygen and becomes indigo blue. By this process the oxidized indigo becomes deposited on the threads of the fabric.

To set the indigo vat begin by mixing one pound of ground indigo with enough water to form a paste. This is done because the powdered indigo is so light in weight that it does not mix readily with large quantities of water. After it has been rubbed into a paste it can be easily diluted with more water, and two quarts may be added before it is poured into the hogshead. Before pouring it in make sure that the hogshead is perfectly sweet. If it is in the least sour or moldy, it will effect the fermentation in the vat. Sweeten the hogshead by burning some sulphur strips in it, the kind wine merchants use to sweeten barrels.

Now dissolve two pounds and a half of copperas in boiling water, afterwards adding enough water to cool it. Then add it to the

indigo in the vat and stir these two ingredients thoroughly together. Next mix the three pounds of slaked lime with ten quarts of water or enough to make it the color of milk, and add it to the mixture already in the vat, stirring it well with a wooden rake all the while.

The copperas or as it is chemically known ferrous sulphate, which is one of the agents for reducing the indigo to indigotin must be chemically pure, because foreign ingredients hinder the chemical action of the vat, and the process of dyeing.

Now we have in the vat, one pound of ground indigo, two and one-half pounds of copperas, three pounds of slaked lime to which in all about twenty quarts of water have been added. To this twenty-four more quarts must be added and the vat stirred vigorously. There should be about forty-four quarts of water in the vat in all.

Let the vat stand for forty-eight hours before using, giving it at intervals a vigorous stirring with the rake. The vat should stand in a moderately warm place as the chemical action in it then goes on more easily. In summer, which is the ideal time to set an indigo vat and to use one too, for that matter, it can stand

in the cellar or barn or even in the summer kitchen. It must not be exposed to the hot sun for it might become sour and it is well to have it stand where there is space enough around it for convenient working. In the winter it can stand in the cellar, if the cellar is heated.

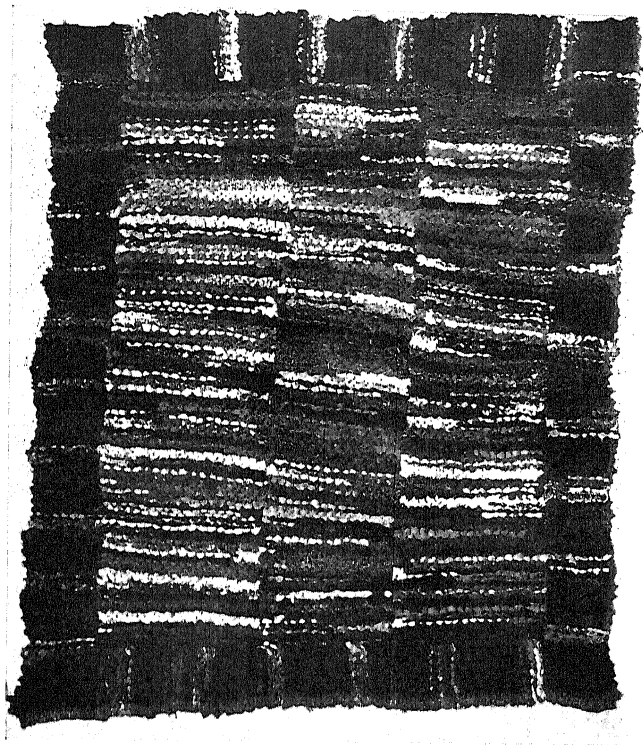
The warm season is the best season for the dyer. First and foremost because the work can then be done in the open and the dyeing of fabrics, then becomes a simple matter. Second, because all chemical action in dyeing takes place more readily in a warm atmosphere and in fair weather. This may sound like an old wife's tale but any one who has tried to dye in damp or rainy weather will know from experience how difficult it is to get the dye to "take." The dyer of threads or fabrics for handicraft will therefore find it quite worth while the forethought it may cost, to plan carefully for summer work, including in it all the setting of vats and the actual dyeing of materials for use in the studio in the winter. Apart from any practical value this plan may have, there is the pleasure of working out of doors which is in itself an inspiration to the creator of color.

After the vat is in a position, the pulley and

the pulley ropes may be placed directly above it, and the fabrics to be dyed with indigo let down easily and dipped into the vat. They can also hang directly over the vat, and drain off before they are passed through the clothes-wringer. Make a slip noose at one end of the rope, so the hanks of thread and pieces of material may be slipped through it and held while dipped in the vat. Take the hanks of thread intended for the dark green and wet them. Put them through the clothes-wringer so that the moisture may be evened up. Then slip them in the noose and dip them in the vat letting them stay there for five minutes. Next draw the pulley, and drain them for a few minutes before they are hung out of doors to oxidize.

When well oxidized they can be dipped again into the vat, wrung out and hung out again. This process if repeated three times will make the color deep enough when the vat is fresh and strong. If it is not a fresh vat you will have to repeat the operation of dipping until the desired color is reached.

The depth of tone in indigo dyeing is always made by overlaying tone after tone of color on the fabric. Take the hanks of thread, prepared by the reserve method for dyeing the mottled



AN OBLONG KNITTED RUG WITH BORDER OF
BANDS OF BLACK INTERRUPTED BY
BARS OF COLOR

green, and dip them in the vat in the same way only do not dye them as dark as the thread which is to be kept plain green. All thread must be rinsed thoroughly, or until none of the dye runs off in the rinsing water. A thorough rinsing is one of the most important processes in dyeing because it prevents what is mistakenly called fading. Fading is actually due to the action of light on dyestuffs. Loss of color on fabrics which have never been properly rinsed, is caused by the loosening of dye particles not actually attached to the fiber. The loose particles of dyestuff are taken off in rinsing or, as the professional dyer would say in the "milling" of the fabric, and later loss of color, or fading is thus prevented. When the action of water on dyed fabrics causes loss of color and the dyestuff runs "bleeding" is the proper term to use. Technically speaking there are only two terms to apply to the nature of dyes. They are either "fast" or "fugitive." Fast if they resist the action of light and water, and fugitive if they do not.

When "She" as the craftsmen of long ago preferred to call their indigo vat is in good condition, the liquor in it is a dark amber color, and becomes covered with a dark blue scum of "flurry" when stirred up with the rake. If

the liquor in the vat is greenish, it shows the presence of unreduced indigo, and more copperas must be added. If on the contrary, the color of the vat is brown, more lime is needed. After using a vat always stir it up with the rake, and after allowing it to settle test the color of the liquor, adding the necessary ingredient and stirring again. After a final settling it will be ready to use. Before using always skim the flurry off the vat with a wooden skimmer.

Greening with Quercitron Extract, over Indigo Blue: "Greening" is the dyers' term for dyeing green with any yellow dye over blue dye. The extract of quercitron, which is our yellow dye, is the inner bark of a tree called the *quercus tinctoria*. When soaked in water it gives out a yellow dye for cotton fiber.

Unwind the hanks which have been wound with raffia and reserved for the mottled green. Soak them all in a solution of washing soda made of one-fourth of a pound of washing soda and one gallon of water. Put the hanks in this solution when it is hot and let them stay in it all night. Tie up the extract of quercitron in a cheesecloth bag and let it soak in an earthenware bowl over night in a quart of water. The extract which comes in the form of a dry

paste contains a certain amount of tannin, which turns the dye from clear to muddy yellow if dissolved by long boiling. So it is necessary to soak the paste beforehand, and have it ready to pour in the dye kettle when this has been brought to the boiling point.

Fill a copper kettle with four gallons of water, bring it to a boil, pour in the quercitron juice but do not drop the bag with the extract in the kettle. Then taking the hanks out of the soda solution, drop them into the boiling dye kettle, two at a time, let them stay there only a few minutes or until they are turned green. If the yellow dye in the kettle becomes exhausted, pour some boiling water into the bowl with the cheesecloth bag, and add the extract to the dye bath.

When the greening process is completed, wring out all the thread, the plain green, the mottled green and yellow and after rinsing it thoroughly, dry it. Then undo all the hanks and wind them into balls. Now the material is all prepared and the knitting of the rug can be begun.

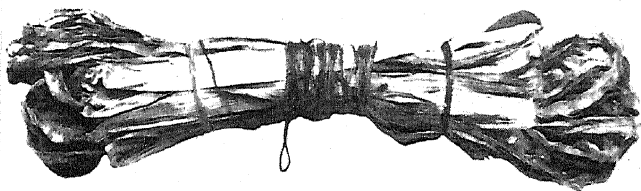
KNITTING THE RUG

The round knitted rug is made of wedge-shaped sections in the same manner as the cir-

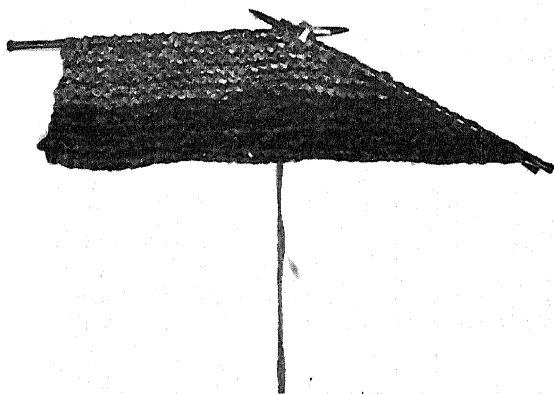
cular shoulder cape. [¶]The sections are knitted continuously and twelve are needed to complete the circle. There is only one seam which comes where the sides of the first and the last section meet and are sewed together. The sections are shaped by leaving one stitch unknitted in each row of stitches. These rows of stitches form the knitted ribs which radiate from the center of the rug and give it the characteristic appearance.

Begin the rug by setting up forty-four stitches of the plain dark green thread on a needle. Then knit all of them off on to the other needle except one stitch, leave this last stitch. It is never taken from the needle on which it is first set up. It is the center stitch of the rug from which all the knitted ribs radiate, the pivotal point. The rows are knitted from the center of the rug toward the edge and back again and it is important to remember that the stitches are transferred from one needle to the other, at the center of the rug and not at the edge. [¶]Of course by the center is meant the point relatively nearest to the center at which each row is started. The unknitted stitches are transferred in the following manner:

[¶]When knitting a row which goes toward the center of the rug, always leave the last stitch



CORN-HUSKS USED AS A PROTECTIVE COVERING
IN DYEING SHADED THREAD BY
THE RESERVE METHOD



A WEDGE-SHAPED SECTION OF THE KNITTED
RUG—SHOWS WHERE THE “MARKER”
IS PLACED ON THE NEEDLE

on that row unknitted. Also, after having turned the knitting to begin a row which goes toward the edge, begin it by first transferring an unknitted stitch to the other needle. The stitches which are transferred are not reknitted again in that section. In order to make sure that one has not forgotten to transfer an unknitted stitch for each respective row, it is a wise plan to tie a piece of cord around the needle and to move it, always keeping it next to the last unknitted stitch which has just been transferred. For the sake of convenience, we will call this cord the marker, and it should be made of a different color from the color of the rug, so that it can be easily seen.

At this stage of the rug there is one stitch on one needle and thirty-nine on the other and we are at the center of the rug. Transfer another unknitted stitch to the first needle, and placing the marker above it, knit off the other thirty-eight stitches. Repeat the knitting of rows and transferring of stitches until ten rows have been knitted in the dark green thread. These ten rows will form five ribs in each section of the rug. They make the dark center and the dark bands which correspond to the surface ornament of the gourd,

Now change the color of the thread and using

the mottled green thread, finish the section by knitting the thirty rows of it, which will make, of course, fifteen ribs in each of the sections of the rug. These rows make the wedge-shaped figures in mixed greens which appear on the rug's surface.

There are now four stitches which have not been knitted on the last row, but the four last stitches on the last row are left unknitted in each section. Change the thread to the dark green and begin another section by the ten rows of dark green as before, followed by thirty of the mottled. This is repeated twelve times, or until the circle is complete. After all the sections are finished, knit the last section off the needles and over-hand it to the first section with a coarse linen thread. After the first and last sections are sewed together, crochet a narrow border around the whole rug. Go twice around, first with the plain chain stitch and then with a scallop stitch. It is this border which gives the finished edge to the rug.

Another suggested rug would suit either a bedroom or a bathroom. The pattern because of its structural character, works out most effectively in a combination of simple tones. A medium blue and a cream-white has been chosen here but there is no objection to its be-

ing carried out in any two harmonious colors of contrasting tone or of contrasting tone values of the same color. If the blue and white scheme is selected, the blue can be dyed in the indigo vat or a commercially dyed blue calico can be used. The cream-white is the usual unbleached muslin. These materials are prepared as directed in the plan for the round knitted rug, and the same size of needles is used.

Begin the rug by setting up fifteen stitches in the blue or in the colored thread selected for the dark tone of the pattern and knit sufficient length to form a square of dark or about twenty-two rows of the knitting. The precise number of rows cannot be exactly estimated because different workers knit more or less closely. This number is counted for rather close knitting and is approximately correct. Now change the thread to the cream-white by sewing it on to the blue thread and knit a square of it. Continue alternating with blue and white squares until seven in all are completed. This makes a strip of knitting about six inches wide and forty-two long.

The next strip must be begun with a cream-white square and continued likewise with alternating squares until the desired number is

produced. Five strips are needed to complete the rug; three beginning with the blue and ending with the blue, and two beginning with the white and ending with the white. These five must be sewed together to carry out the pattern. They form the body of the rug; the borders are added later.

The strips which form the borders are made in the blue thread and are set up of nine stitches. Two strips are needed for the sides of the rug and they must be forty-two inches in length. Two strips of the same width are needed for the ends of the rug but these are only thirty-six inches long. These four strips sewed on each side and at both ends, form a complete border around the rug. The size of this rug finished is thirty-six by forty-eight inches including borders. The center measures thirty by forty-two inches. The rug can be enlarged in relative proportion by adding two squares to the length and two to the width. The borders then also must be proportionately enlarged.

THE CROCHETED RUG

CHAPTER VI

THE CROCHETED RUG

HOWEVER humble may be the kindred crafts of knitting and crocheting, much interest may be developed in them through a thoughtful consideration of their technical possibilities. Any one, you would say, can crochet even if she cannot knit. So much the better then, for more craft workers will find that even such a simple art as crocheting combined with thought and design can be made worth while.

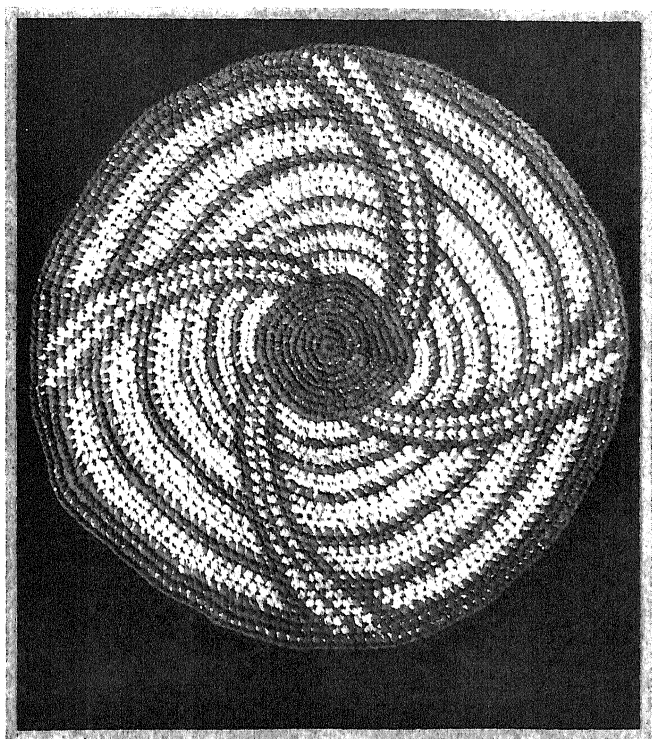
The crocheted rug in this chapter is related to the knitted rug of the preceding chapter through the tool used in making it, for they are both needle-made rugs. But here the likeness ends, for the crocheted rug is more closely related to the braided rug of the first chapter because of actual similarity in the construction. Though the braided rug is made with a very different kind of needle from the knitting needle, its coiled construction is also characteristic of the crocheted rug.

In the braided rug, the three-stranded braid begins at the central point of the rug's construction, and grows around and around it in widening curves out toward the edge. The action of the braid in this rug gives its design a distinctive appearance and produces certain ornamental effects which cannot be obtained by any other manner of rug-making.

THE DESIGN

The stitch of the crocheted rug, which, decoratively speaking, is its unit of construction, has a line action similar to that of the braided rug, and also controls its design.

Two more examples of this type of construction are found in the coiled pottery and coiled basketry of the Navajo Indians. Both these crafts get their names from the type of their construction. The coiled pottery is only similar to the crocheted rug in its purely constructive features, for clay demands a different kind of surface decoration from cotton thread. The likeness in the coiled basket is closer to the crocheted rug for its material is more similar, and it too is built up stitch by stitch. The basket is made of grass fiber and the rug of strands of cotton cloth, and the stitch



A WELL-PLANNED CROCHETED RUG, SHOWING
HOW A CONSISTENT DESIGN IS DEVELOPED
THROUGH CONSTRUCTION AND
TECHNICAL LIMITATIONS

which is used to construct them is consistent with the material of which they are made. In both, the stitch, which is the unit of construction, produces the effect in surface ornament of a succession of small squares, which follow the action of the coil from one widening curve to the other from the center of the rug out to the edge. Therefore as these structurally ornamental stitches produce the same kind of pattern in the rug as in the basket, any design which could be applied to one would also be suitable for the other, and the design for this rug has been adapted from a coiled basket made by the Navajo Indians. The colors used in it are colors which are also characteristic of the Navajo basket.

The design is abstract in character, for the stitch of the crocheted rug suggests a formal type of ornament. It is in fact almost geometrical but as the structural features in this rug are rather pronounced, this type of ornament harmonizes well with them.

The most successful plans for any kind of handicraft are those which have a tendency to weld together surface ornament and structure. Almost every technique develops two styles of design, one which is structural and one which appears in various forms of surface pattern.

The one can be best interpreted by line; the other by spots of tone or color value. Thus structural features become ornamental through the repetition of tone or color value on carefully selected points of the line action.

When the technique of any kind of handicraft shows a disposition to control the character of its surface ornament, it is well to respect this tendency because over-ornamentation is one of the evils of the present day. Indeed more often than not ornament is used to cover the defects in a weak construction.

Another example of the construction similar to that of the crocheted rug, and one which is more familiar perhaps than either the coiled pottery or the baskets of the Indian tribes, is the crocheted table mat, used under hot dishes for the purpose of protecting a polished table. These are made of white cotton thread. In this medium, surface pattern in tone and color cannot be carried out, and the only design which can be distinguished in these mats is that made by the action of the stitches as they follow the construction. These mats are made in round, oval and hexagonal forms and the crocheted rug can be made in these same shapes.

The model crocheted rug is a round rug 38

inches in diameter; the colors used in it will be sharply contrasting tones of brown and yellow. It is necessary to use sharply contrasting tones of color in order to carry out successfully the effect of the pattern. This rug could be suitably placed in a living-room, bedroom or bathroom.

TOOLS AND MATERIALS NEEDED

One wooden crochet needle; five-gallon copper kettle; a pair of wooden spoons; one ounce of lump alum; two ounces of extract of catechu; one-fourth ounce of copper sulphate; one-fourth ounce of bichromate of potash; twenty yards of unbleached cotton muslin.

PREPARATION OF MATERIALS

Divide the twenty yards into two lots of ten yards each, reserving one for the catechu brown and one for the peach-leaf yellow. Wash them as usual to remove the oil from the cotton, then tear them into strips one inch wide by the method recommended in the braided rug. Tearing the material before it is dyed makes the dyeing easier. Wind the torn material into hanks of a convenient size for dyeing.

DYE RECIPES FOR THE CROCHETED RUGS

Peach-leaf Yellow: This dye which is a beautiful and permanent straw-colored yellow is obtained from the leaves of the peach tree. These give a stronger color if gathered and used in the fall of the year but are valuable at any season.

After wetting the hanks of muslin which have been reserved for this color, immerse them in the dye bath which has already been prepared by soaking two quarts of green peach leaves in warm water with a small lump of the alum. Boil these together with the material for about an hour or until the desired shade of yellow is reached. Do not boil too long for then a brownish tone is apt to come into the dye. Remove and dry, then rinse and dry and wind into balls for crocheting.

Brown with Catechu: This dyestuff which is the extract of several kinds of East Indian tree barks gives good and permanent shades of browns in tones of yellow and red according to the treatment used. It is a valuable color for the craftsman.

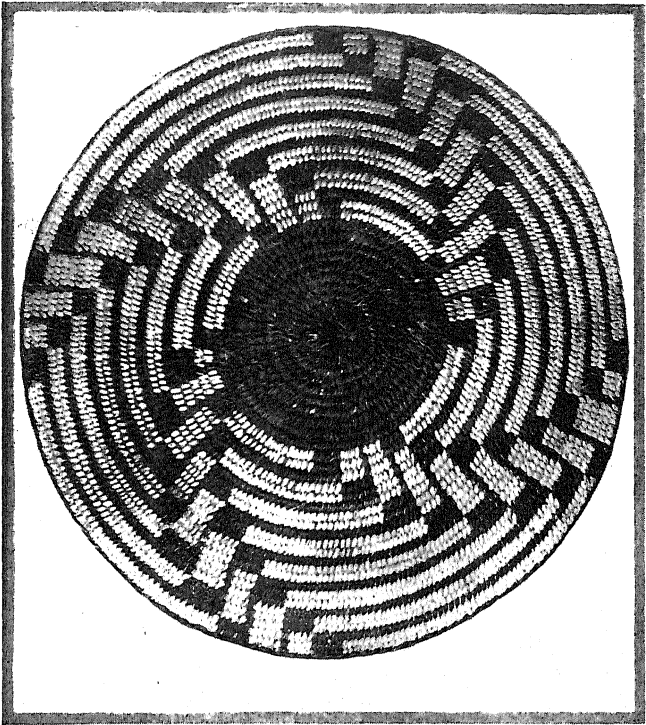
Catechu extract comes in the form of a dry paste. Take the two ounce piece of extract and after sewing it in a small cheesecloth bag,

soak it in a quart of cold water in a porcelain bowl over night. In the morning add four gallons of boiling water and one-fourth ounce lump of copper sulphate. After the sulphate is dissolved, immerse the hanks of torn thread reserved for the brown and let it come to a boil in the dye kettle. Remove the kettle from the stove and let the hanks steep in it over night or until absolutely cold. Then take them out of the dye and let them dry thoroughly in the open air. Take a lump of bichromate of potash about the size of a hazel nut, and dissolve it in two gallons of warm water. Dip into it each hank of thread dyed in the catechu and after taking each out, let it dry before using it. Then wind it into balls for crocheting.

Iron Buff and Gray with Tannic Acid over Iron Buff: It is impossible to get peach leaves to carry out the scheme with the straw-colored yellow; a very light tone of the iron buff used in the chapter on the needle-woven rug may be substituted for it and used in combination with the catechu brown, or gray may be substituted for the brown. This gray is developed by first dyeing the iron buff and then dipping it in a solution of tea leaves. This gray is perfectly fast to light and alkalis.

CROCHETING THE RUG

The stitch used in crocheting this rug is plain crotchetstitch. It looks more like cross-stitch when executed, than any other of the crocheted stitches. Make one loop on the needle and then form a second by taking off the thread, then crochet both loops which are on the needle leaving one loop again on the needle. There are never more than two loops of thread on the needle at a time. Begin the rug by making a loop of the light yellow thread large enough to accommodate twelve stitches and crochet into it twelve stitches of the dark brown. The ends of the two threads, that is, the yellow and brown should be sewn together before the loop is made. Now tie a marker of white thread into this first round of stitches. The threads in the crocheted rug are continuous; while the thread of one color is being used, the thread of the other color is slipped under and the stitches are crocheted over it. This manner of using a continuous thread has two distinct advantages, it saves unnecessary piecing, and the thread which is not in use pads out the rug, making it more substantial. The thread underneath the stitch should be pulled up occasionally to keep the stitches firm.



A NAVAJO BASKET WITH ITS CHARACTERISTIC
DESIGN, A DESIGN WHICH IS ALSO CHAR-
ACTERISTIC OF THE CROCHETED RUG

After crocheting the twelve stitches of dark thread into the loop, proceed and make nine or ten rounds of brown stitches, to form the center. There must be sixty-four stitches in the last round. The beginning of each new round can be readily seen when indicated by the marker which was tied in the first round of twelve stitches. Double the stitches occasionally in these first rounds, just enough to keep the center of the rug from "capping" but not enough to make it "full up." When counting the stitches do not count the chain on the top but the stitches that have already been crocheted into the round below.

After the pattern begins the doubling takes place at regular intervals and always comes in the longest count of each round. For example, in the first count of the first round make four stitches, then double in fourth stitch, then make four more, making the nine stitches of the count. It is wiser to have the doubling take place at the same points in the count as it has an effect on the shape of the rug.

COUNTING THE PATTERN

In counting the pattern the capital letter "L" represents the yellow stitches or the lightest

tone of the pattern. The capital letter "D" represents the brown or the darkest tone in the pattern. The first row of pattern comes after the nine or ten rows of solid brown of the center.

First Round of Pattern: 9L, 2D, 1L, 1D, 1L, 2D, 9L, 2D, 1L, 1D, 1L, 2D, 9L, 2D, 1L, 1D, 1L, 2D, 9L, 2D, 1L, 1D, 1L, 3D.

Second Round of Pattern: 11L, 2D, 1L, 1D, 1L, 2D, 11L, 2D, 1L, 1D, 1L, 2D, 11L, 2D, 1L, 1D, 1L, 2D, 11L, 2D, 1L, 1D, 1L, 3D.

Third Round of Pattern: 13D, 1L, 1D, 1L, 16D, 1L, 1D, 1L, 16D, 1L, 1D, 1L, 16D, 1L, 1D, 1L, 3D.

Fourth Round of Pattern: 12L, 2D, 1L, 1D, 1L, 2D, 12L, 2D, 1L, 1D, 1L, 2D, 12L, 2D, 1L, 1D, 1L, 2D, 12L, 2D, 1L, 1D, 1L, 3D.

Fifth Round of Pattern: 13L, 2D, 1L, 1D, 1L, 2D, 13L, 2D, 1L, 1D, 1L, 2D, 13L, 2D, 1L, 1D, 1L, 2D, 13L, 2D, 1L, 1D, 1L, 3D.

Sixth Round of Pattern: 16D, 1L, 1D, 1L, 18D, 1L, 1D, 1L, 18D, 1L, 1D, 1L, 18D, 1L, 1D, 1L, 3D.

Seventh Round of Pattern: 15L, 2D, 1L, 1D, 1L, 2D, 15L, 2D, 1L, 1D, 1L, 2D, 15L, 2D, 1L, 1D, 1L, 2D, 15L, 2D, 1L, 1D, 1L, 3D.

Eighth Round of Pattern: 16L, 2D, 1L, 1D,

1L, 2D, 16L, 2D, 1L, 1D, 1L, 2D, 16L, 2D, 1L, 1D, 1L, 2D, 16L, 2D, 1L, 1D, 1L, 3D.

Ninth Round of Pattern: 19D, 1L, 1D, 1L, 21D, 1L, 1D, 1L, 21D, 1L, 1D, 1L, 21D, 1L, 1D, 1L, 3D.

Tenth Round of Pattern: 18L, 2D, 1L, 1D, 1L, 2D, 18L, 2D, 1L, 1D, 1L, 2D, 18L, 2D, 1L, 1D, 1L, 2D, 18L, 2D, 1L, 1D, 1L, 3D.

Eleventh Round of Pattern: 19L, 2D, 1L, 1D, 1L, 2D, 19L, 2D, 1L, 1D, 1L, 2D, 19L, 2D, 1L, 1D, 1L, 2D, 19L, 2D, 1L, 1D, 1L, 3D.

Twelfth Round of Pattern: 20L, 2D, 1L, 1D, 1L, 2D, 20L, 2D, 1L, 1D, 1L, 2D, 20L, 2D, 1L, 1D, 1L, 2D, 20L, 2D, 1L, 1D, 1L, 3D.

Thirteenth Round of Pattern: 23D, 2L, 1D, 2L, 25D, 2L, 1D, 2L, 25D, 2L, 1D, 2L, 25D, 2L, 1D, 2L, 3D.

Fourteenth Round of Pattern: 24D, 2L, 1D, 2L, 26D, 2L, 1D, 2L, 26D, 2L, 1D, 2L, 26D, 2L, 1D, 2L, 3D.

Fifteenth Round of Pattern: 23L, 2D, 2L, 1D, 2L, 2D, 23L, 2D, 2L, 1D, 2L, 2D, 23L, 2D, 2L, 1D, 2L, 2D, 23L, 2D, 2L, 1D, 2L, 3D.

Sixteenth Round of Pattern: 24L, 2D, 2L, 1D, 2L, 2D, 24L, 2D, 2L, 1D, 2L, 2D, 24L, 2D, 2L, 1D, 2L, 2D, 24L, 2D, 2L, 1D, 2L, 3D.

Seventeenth Round of Pattern: 25L, 2D, 2L,

1D, 2L, 2D, 25L, 2D, 2L, 1D, 2L, 2D, 25L, 2D, 2L, 1D, 2L, 2D, 25L, 2D, 2L, 1D, 2L, 3D.

Eighteenth Round of Pattern: 29D, 2L, 2D, 2L, 31D, 2L, 2D, 2L, 31D, 2L, 2D, 2L, 31D, 2L, 2D, 2L, 3D.

Nineteenth Round of Pattern: 30D, 2L, 2D, 2L, 33D, 2L, 2D, 2L, 33D, 2L, 2D, 2L, 33D, 2L, 2D, 2L, 3D.

Twentieth Round of Pattern: 28L, 2D, 2L, 2D, 2L, 2D, 28L, 2D, 2L, 2D, 2L, 2D, 28L, 2D, 2L, 2D, 2L, 2D, 28L, 2D, 2L, 2D, 2L, 3D.

Twenty-first Round of Pattern: 29L, 2D, 2L, 2D, 2L, 2D, 29L, 2D, 2L, 2D, 2L, 2D, 29L, 2D, 2L, 2D, 2L, 2D, 29L, 2D, 2L, 2D, 2L, 3D.

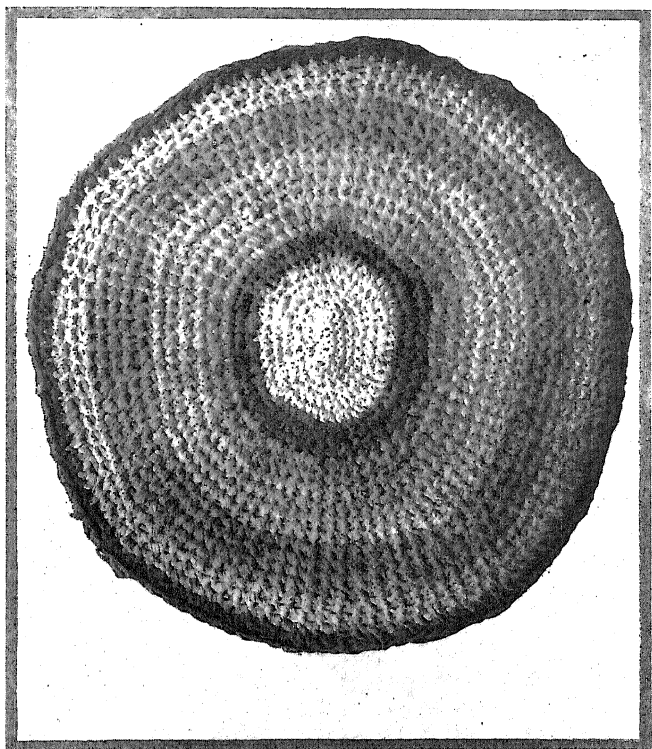
Twenty-second Round of Pattern: 30L, 2D, 2L, 2D, 2L, 2D, 30L, 2D, 2L, 2D, 2L, 2D, 30L, 2D, 2L, 2D, 2L, 2D, 30L, 2D, 2L, 2D, 2L, 3D.

Twenty-third Round of Pattern: 33D, 3L, 2D, 3L, 36D, 3L, 2D, 3L, 36D, 3L, 2D, 3L, 36D, 3L, 2D, 3L, 3D.

Twenty-fourth Round of Pattern: 36D, 3L, 2D, 3L, 39D, 3L, 2D, 3L, 39D, 3L, 2D, 3L, 39D, 3L, 2D, 3L, 3D.

Twenty-fifth Round of Pattern: 39D, 3L, 2D, 3L, 42D, 3L, 2D, 3L, 42D, 3L, 2D, 3L, 42D, 3L, 2D, 3L, 3D.

Finish the edge of the rug by winding it over and over with a strip of the brown to suggest



AN OLD-FASHIONED CROCHETED RUG: A LOST
OPPORTUNITY FOR DEVELOPING DE-
SIGN FROM TECHNIQUE

the finish on the edge of a basket. The strip of brown can be threaded into a bodkin and be worked in and out through the chain of stitches on the edge of the rug. This finish emphasizes the general effect of basketry in the design.

This is one of the most attractive and important handmade rugs, but in order to make it really successful the plan must be carried out with the greatest exactitude.

After the pattern begins to develop and one can see its effect the work is easier, but in the first few rounds of pattern which follow the center of solid brown, the count must be taken on faith, as it were, and followed without question.

Remember before all that the last round of brown in the center of the rug must tally up to the count of sixty-four stitches.

**THE HOOKED RUG IN COTTON AND
WOOL**

CHAPTER VII

THE HOOKED RUG IN COTTON AND WOOL

WE may safely say that the hooked rug or the pulled rug, as it is sometimes called, is the most important of the handmade rugs. It has been more successfully developed under new conditions of craftsmanship than any other of the old-fashioned rugs. In nearly all the show rooms of the Arts and Crafts Societies there are examples of it in charming colors and appropriate designs. Two village industries have been started to make it; one in the mountains of New Hampshire and one at Cranberry Island, near North East Harbor, Maine. Besides these two industries there are many isolated workers making successful hooked rugs. The larger industries have been placed on a sound financial basis, and the workers who are mostly women are extremely well paid.

These women of the New England farms have been associated with this style of rug and its

traditions for several generations. They are nearly all familiar with the gentle art of hooking and have therefore helped to revive this branch of craftsmanship in this section of the country. While they are familiar with the technique of hooked rugs, they have not been able to give their products a market value, because they could not plan them from the standard of modern craftsmanship without the knowledge of design and color arrangement.

I remember the first time I saw a hooked rug. I at once realized that in its technique were the possibilities for the development of a craftsmanlike rug. Though certainly the appearance of the one I first saw was anything but hopeful. It came from Prince Edward Island, Canada. The maker had evidently been carried away by the enthusiasm for her skill in hooking and had ingenuously and likewise ingeniously, worked in a pattern of raised roses in the center panel of her rug. This pattern was padded from underneath to give the roses the appearance of reality. It was very solidly constructed and much above the average level of the rug's surface. It was a real obstruction, but there its reality ended. It made the rug inartistic and unserviceable. First of all, inartistic because nature cannot be reproduced in

woolen thread. It can be represented only in any medium with artistic reality. Second, because of this inappropriate plan the rug could not last well. The raised portions being more exposed than the lower portions would wear out sooner.

One of the greatest benefits which come from founding village industries is raising the standard of public taste. This influence comes directly through the individual worker, who in connection with rug-making begins to study a little design. So besides the benefit to the community, the individual worker has a keener interest in the work because of being able to plan it well.

The study of design is not a matter of technical complications. The workers are taught the application of decorative principles, learn line arrangement, placement of masses and the relation of tone and color values. They are also taught the use of reliable dyes which produce permanent and artistic colors. The workers themselves sometimes know of valuable old dye recipes. These can be made serviceable by a systematic revision replacing the rule of thumb by exactness in chemical proportion. One can never be too exact in chemical combination for even with the greatest precaution

the unexpected is likely to happen. There are always factors present which produce unforeseen results; it is therefore wiser to exclude all possible elements of chance. The results of experiments are not always practicable and may be costly.

One of the dye recipes which I found in use among the women of Cranberry Island, is the iron buff given in the chapter of the needle-woven rug. There it is called copperas yellow, and is used in the form of salts of iron and homemade soft soap. In the revised recipe with more exact proportion it will give better results.

Hooked rugs are made from either cotton or woolen materials. The same tools are used with both kinds, for there are only slight differences in their technique. The main point of difference being in the manner in which the loops of material are pulled up through the foundation on which the rug is made. The foundation is first of all stretched on a wooden frame. It is made of burlap or raw jute as it is sometimes called commercially. The principal technical feature of the rug is the hooking of the strips of material into the foundation, where the collective loops form the textile. The loops are crowded in between the

meshes of the burlap and held by pressing one against the other.

The actual difference between the methods of making the two kinds of rugs is that in the cotton rug the loops are pulled up evenly; in the wool rug, unevenly. The woolen rug is clipped after it is hooked. Clipping improves the pile for the color in the flannel loop deepens when it is cut, and becomes velvety in texture. Another way to add variety of tone value or to get incident in color in the surface of the rug, is to dye the cotton and woolen strips somewhat unevenly. The cut ends of the loops in the woolen rug mat together and this makes the pile more uniform. This is due to the nature of wool fiber; its physical structure might be compared to that of an elongated pine cone. The outer cells are placed in one direction only and appear as horny scales of irregular shape overlapping each other in the manner of roof tiles. When a number of wool fibers lying in all directions are brought together in close contact, the opposing scales become interlocked, causing the operation which is technically known as "felting."

Cotton rugs are not clipped because the cotton strip has no tendency to felt; it only frays and fraying would weaken the texture of the

rug. Cotton rugs, however, have the advantage of being washable. Consequently they can be made in light colors and used in bedrooms and bathrooms where darker rugs would not be as appropriate. Then too, the cotton rug is cheaper than the woolen rug.

The wool rug in dark tones of blues, reds, or greens is sufficiently substantial to be used in dining-rooms and living-rooms especially if the rooms are paneled with wood in a simple style and furnished with Norwegian painted furniture or in Mission furniture. In fact the woolen rug can be used in almost the same places as the Oriental rug, for in its revived form it is a dignified and artistic product. As it is not made with the fine silky woolen thread of the Orient it necessarily lacks a certain elegance and texture which is found in all Eastern rugs.

The cotton and wool rugs can both be made in large sizes; as they can be hooked in sections and sewed carefully together afterwards, the seams do not show. Hooked rugs can also be made of odds and ends of old materials. If there are not enough of some colors, whites and gray can be dyed in brighter shades to help out. It is wise to plan the rug carefully in the beginning and find out as exactly as possible just

what quantities of material are needed for each color in the design. It is trying to stop work and hunt up material to dye some special color which has unexpectedly given out, before the rug is finished.

Perhaps it is less limiting to one's inventive faculties, to start out to make a rug of entirely new materials; to make an attractive plan and buy the materials to carry it out. With old materials one must cut one's coat to fit the cloth and it requires much patience and skill to work out a scheme to fit the different amount of colors on hand. Then too, it takes a great deal of time to prepare old materials whether in cotton or wool, for they are usually more or less tender and must be cut or torn strip by strip. The hooking cannot be done as quickly either, for old materials are liable to break when hooked into the foundation and must, therefore, be carefully handled. However, some interesting and original rugs are made in this way and if they are for home use all trouble is repaid.

A plan is given here for a rug made of old materials, though it does not pay to make rugs usually of them if one is pressed for time on orders. It takes longer to prepare them, and then rugs made in this way cannot be duplicated. When rugs are made profession-

ally, orders for duplicates often come in. A customer has seen a rug in the house of a friend and must have one exactly like it, or wants to match a piece of furniture already in use. When told that the rug cannot be duplicated, she is quite naturally disappointed and not likely to come again.

There is so little essential difference in the technique of the two kinds of hooked rugs, that the same type of design can be applied to each, but in order to have as much variety as possible between the plans, a design of a quaint-old-fashioned kind has been chosen for the hooked rug in cotton. This design has a blue border and a basket of gaily colored flowers, falling on a background of cream-white.

Practically the only limitation in the technique of the hooked rug, is the coarse strip of woolen or cotton material which forms the thread which makes the loops. In this medium designs with much fineness of detail cannot be successfully carried out. The loops make the pile of the rug and while they are, decoratively speaking, the units of its structure, they are not particularly constructive in character, for they suggest surface ornament rather than line action. With the medium of the coarse strip, therefore, arrangement of large masses of color

can be used successfully. These masses of color should be as nearly as possible the same degree of tone value. If there is much contrast, the effect of large masses of different colors is too striking.

If the design is to be carried out in several colors, an outline will help to harmonize and bring the various tones together. Sometimes two outlines may be used with good effect: One in a lighter tone value and the other in a darker tone value, than any of the other colors in the design.

The treatment of the hooked rug differs radically from that of the Oriental rug. The Oriental rug is made on a loom and is really a woven fabric. The fine woolen thread of which it is made is knotted piece by piece into the woof which forms the foundation of the rug.

In this medium, designs with great intricacy of detail can be worked out. Formerly the Oriental rug-maker used only camel's hair and goat hair in rug weaving, and to this fine silky hair is due the great elegance of texture in the Eastern rug. It is also said that these rugs grow more lustrous from the clay dust which is trodden and rubbed into their surface by the bare feet of the Orientals. These facts make the antique Oriental rug vastly superior to the

modern Oriental. The effect of hundreds of years of wear cannot be artificially reproduced in the texture by commercial means.

American handicrafters cannot produce rugs similar to the Oriental unless working under like conditions. Neither can the modern Oriental do it. Each must take advantage of his circumstances. Oriental design cannot be successfully applied without using Oriental material and methods of working. The long and tedious process of knotting each little bit of woolen thread into the woof of the rug, does not appeal to our handicrafters especially because they are not familiar with the conditions which produce this method. Conditions in this country are not conducive to years and years of work on the same piece of handicraft. We are not living here from the Oriental standpoint. Besides a rug like the Oriental cannot be made in this country at a cost which could sell with profit. The experiment to make them in a village industry established for the purpose made the cost \$5.00 a square foot of rug. This fact alone makes this variety of rug unmarketable.

There are minor rugs, the rag-bit rug and the raveled rug which might be called forerunners of the hooked rug. These rugs are chiefly interesting because they show how a real tech-

nique may grow out of small beginnings. They deserve mention in this connection only, for their methods are far too crude to suggest constructive design.

The rag-bit rug is the most primitive and is made by sewing small bits of woolen cloth on a foundation. This foundation is frequently made of a piece of old carpet with the nap worn down. Odds and ends of cloth of all shapes and kinds are used and consequently no effect of texture or design is produced. These minor examples of rug-making demonstrate the idea of using what one has on hand carried to an extreme of thriftiness. Though no doubt it was in this same way that the more important hand-made rugs were developed.

In some instances the center of the rag-bit rug is found surrounded by a border made of narrow strips of carpet.

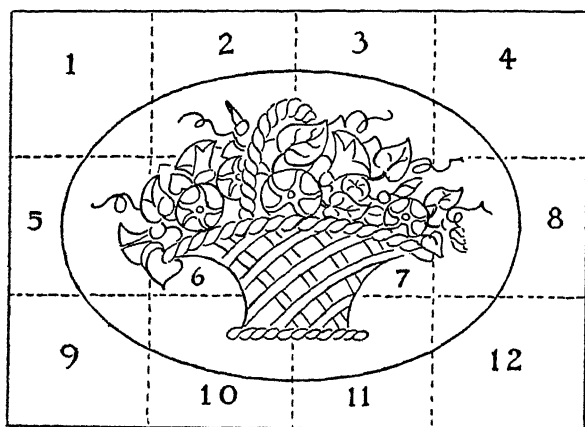
The raveled rug is made from thread raveled from old pieces of carpet. These threads are drawn through the meshes of a loosely woven foundation with a crochet hook. The crowding of the threads between the meshes of the cloth holds them in as in the hooked rug. Sometimes the groups of thread in the raveled rugs are merely caught down with a thread and needle on the foundation.

There are several other instances of these simple methods of rug-making but they are quite similar to the ones here mentioned, and only serve to emphasize the origin of the hooked rug.

THE HOOKED RUG IN COTTON

THE DESIGN

In the plan for the hooked rug in cotton the design is of the quaint old-fashioned kind, sug-



Plan for hooked rug in cotton.

gestive of the Colonial times and suitable for a bedroom furnished in that style. It represents a basket of gayly colored garden flowers. The border is blue and surrounds the oval panel

reaching to the edges of the rug. The colored figures of the center oval panel fall on a background of cream-white. The dye recipes used to get the colors are reliable old formulæ dating no doubt as far back as those used by our great-grandmothers. The blending of these soft yet clear colors is most charming and thoroughly appropriate for a rug of this design.

MATERIALS FOR THE RUG

The material for the hooked rug in cotton is prepared almost in the same manner as for the other handmade rugs. Sixteen yards of unbleached cotton muslin are needed. After this is washed and dried, tear off into these lengths: First seven yard lengths and mark them with an indelible pencil, indigo blue; one length of one and one-half yards and mark it iron buff; one and one-half yards and mark catechu brown; and one-half yard marked peach-leaf yellow or quercitron yellow. Leave four yards of unbleached muslin color to be used for the cream-white.

Now tear these lengths into strips one-half inch wide and tie into hanks for dyeing. The larger amounts may be subdivided into two or more hanks as the smaller hanks are easier to

handle. Do not mix the hanks up which are reserved for each color. A safe and practical way is to mark a linen tag with indelible ink with the name of its color and tie it on the hank. There is then no danger of confusion when the hanks are immersed in the dye vat.

The size of this rug is twenty-four by thirty-six inches when finished. The entire surface measures six square feet. It takes two square yards of material to one square foot of hooked surface, so by actual count it would take twelve yards of muslin, but as there is apt to be waste in tearing the material and as some workers use up more than others, it is wise to have a surplus and be on the safe side. If any odds and ends are left over they can be kept in case at some other time these same colors run out. Then too scraps of hand-dyed muslins are often very suggestive in planning a color scheme for a new rug.

The different parts of the design are carried out in the following colors: Indigo blue for the border around the oval, the outline and for the morning glories in the flower basket. The entire design is outlined in blue, as blue when introduced in this manner brings a certain soft bloom into the general coloring of the rug. The unbleached muslin as cream-white, is used for

the entire background of the oval central panel. The body and handles of the flower basket are in the iron buff. The squares which come in between the interlacing of the basket are in a catechu brown. All the flower leaves are in a quercitron green. The morning-glories have a star-shaped figure of cream-white in the center and a dot of the peach-leaf or the quercitron yellow.

Dye Recipes and Chemicals: The dye recipes and chemicals also the utensils needed are found in the following chapters: Indigo blue in the chapter on the knitted rug (page 72). The recipe for indigo and quercitron green in that same chapter. The iron buff in the chapter on the needle-woven rug (page 155). The peach-leaf yellow in chapter on the crocheted rug or if the quercitron yellow is substituted for it, this will be found in the chapter on the knitted rug (page 78).

The Rug Frame and the Hook: The tools used in making the hooked rug are only two. The hook and the frame. The rug hook or the rug needle as it is sometimes called, is not a commercial product and must therefore be made to order or one must make it one's self. If one has a small forge this can easily be done; otherwise it can be made by a toolmaker or a black-

smith. Get a forty-penny wire nail and after having heated it to a white heat, flatten out the head with a forge hammer. Then bend it into shape by curving it slightly outward. File the flattened head into the hook and set the pointed end of the nail into a tool handle while it is hot or heat it for that purpose. When all this is done, finish the hook by giving it a good rubbing down with emery paper. To work well it must have a smooth surface; an old and much-used hook is much pleasanter to work with than a new hook. It is much more easily pushed through the foundation. The metal portion of the hook should be about five inches long when finished. The handle is three inches long.

The Wooden Rug Frame: The frame is made of soft wood either pine or locust. There are four pieces: two side pieces, forty inches long, two end pieces eighteen inches long; the wooden strips from which they are cut are one and one-half inches in thickness and two inches in width. These four pieces are made and fitted together to make the frame. The side pieces which measure forty inches have augur holes at either end, spaced one and one-half inches apart. The end pieces which measure eighteen inches have a fixed peg at each end, one and one-half inches from the end. The

pegs in the end pieces fall into the holes in the side pieces and little iron shutter catches are added for greater steadiness. The size of the frame may be regulated by moving the pegs up or down into the holes.

PRINTING THE PATTERN ON THE FOUNDATION

The piece of burlap which is used as a foundation for the hooked rug whether made of cotton or wool, is a material which is commercially known as raw jute. It is also sometimes called "gunny sacking." It is a fabric woven of a coarse hempen or jute thread. As it is sometimes wrapped around large bales and bundles for packing, it may be on hand but if not it can be procured at a furniture shop or in the furniture department of the larger dry goods stores.

As the size of our cotton rug measures twenty-four by thirty-six inches we shall need a piece of burlap measuring twenty-eight by forty inches or two inches larger all around than the size of the rug. The two extra inches all around are turned under into a hem of single thickness and stitched down on a sewing machine, one-quarter of an inch from the edge.

The sewing machine stitching stays and strengthens the foundation at the edges of the rug where it gets most wear and tear. The extra thickness of burlap at the corners where the hem is turned under double, is cut away and the raw edges over-handed. It is wiser to over-hand the whole piece of burlap before beginning to make the foundation. The loose flap of the hem is caught down and held in place by loops of material when the rug is hooked. The old-fashioned method of finishing a hooked rug was to hem it after all the hooking was done. Then the hem of burlap was sewed down on top of the under-side of the rug over a hooked portion. This left the burlap outside exposed to rubbing on the floor. Since jute is apt to fray out, by hemming the foundation, before it is hooked, this is avoided, and the under-side of the rug has a neater appearance, by being uniform to the very edge. There is little difficulty in hooking the strips through two thicknesses of burlap.

Transferring the Design to the Rug Foundation: The design can be transferred to the foundation by one of two methods. It can be drawn on or printed with a stencil. If the rug design is to be repeated several times, it is more convenient to have a stencil. If on the

contrary, the design is only to be used once it is as well to draw it on the foundation. But in order to get acquainted with the two methods we shall draw the design on the foundation for the hooked rug in cotton and stencil it on for the hooked rug in wool.

With a piece of white chalk mark off the foundation into squares of eight by eight inches. There will be three squares in the width and four in the length, making twelve in all. Number these from one to twelve so they correspond exactly to the cross lines drawn on the design in the illustration. The scale for the drawing is one inch to one foot. Now copy into each square with the marking chalk, that portion of the design which falls into that particular square. Thus section by section the design will become enlarged. With a medium-sized paint brush and liquid bluing, trace over all the chalk marks of the design omitting the lines of the squares which were used for the enlargement only. After the bluing has dried, brush off the remaining chalk and the foundation is ready to stretch on the frame.

Stretching the Foundation on the Frame:

Take the frame apart and fasten the corner of the foundation with a strong cord to the side

bar of the frame. With the rug hook pull the cord through the edge of the foundation just inside the machine-sewed hem. Wind the cord around the bar and through the foundation at intervals of not more than three inches. Then fasten the opposite side of the foundation in just this same way, to the other side bar. These side bars, remember, measure eighteen inches. The foundation should be centered in the middle of each bar. Wrap the foundation around one of the bars to which it has been fastened until the width of the foundation between the bars measures fourteen inches. Fit the frame together stretching the foundation as taut as possible between the two side bars. Stay the edges of the rug at the ends. When the foundation is stretched on the frame, there should be no creases or folds. It is much easier to hook the strips through a foundation which has been well stretched on the frame. If the work on the rug is to go ahead smoothly, all these relative and minor points must be attended to accurately.

HOOKING THE RUG

Get yourself comfortably settled at your rug frame before beginning to hook. Do not stoop

over the frame. Stooping contracts the chest and one tires easily in a cramped position. Resting the frame on the top of two chairs or a table at a proper height is the best way to work. Each rug-maker must adjust the height of the frame to suit herself. The arms and hands however must be in an easy position as the movement of the wrist must be free.

Take a strip of indigo blue reserved for the outlining and hold it under the foundation with the left hand. With the right hand take the rug hook in exactly the same manner as one would in crocheting. Push the hook through the meshes of the foundation and pull up the strip by drawing an end through first. Hold on to the end from underneath so that it won't slip back again. Then put the hook down again through the foundation, draw up the strip which will this time be a loop, make the loops three-eighths of an inch high. Hook in all directions and for the cotton rug pull the loops up just as evenly as possible. When beginning another strip, draw the end up into the same hole occupied by the end of some other strip. Leave from two to three meshes of the burlap between each loop and be sure not to split the threads of the foundation as this weakens the fabric of the rug.

Begin hooking the rug pattern by first outlining that part of the design exposed in the frame. Outlining is easier than filling in and it gives one a clearer idea of the design to first outline it. After the outlining is completed fill in all the spaces of the design with the colors assigned. Always hook from the edges toward the center of each frameful. The very most central spot should be the last to be filled in. Change from color to color just as the spaces in the design come, and do not leave the background the last to be filled in. When changing the color of the strip, and going from one part of the design to another, do not double the strips on the under side of the rug. Cut them and begin over again. Overlapping the strips on the under side of the rug makes a clumsy lump that is apt to cut through before the rest of the rug. Hooking the rug from the sides toward the center prevents the edges of the rug from ruffling up. There is always a certain amount of fulness which comes from the stretching of the burlap. This extra fulness may be pushed by the hooking toward the center of the rug where it is taken up and the edges of the rug remain flat. When hooking, push the new row of loops against the rows already

hooked. This method prevents wide spaces from coming in between the rows. After one frameful has been hooked, wind it round one of the side bars and begin again by tying in another frameful. The rug is hooked frameful by frameful.

THE HOOKED RUG IN WOOL

THE DESIGN

The design for the hooked rug in wool is called the "Tea Chest Pattern" because it was suggested by the design on an old Chinese tea chest. The wide-awake designer is always on the lookout for some interesting motif, and is ready for a suggestion from any quarter. The tea chest pattern is to be carried out in two tones of brown one of dark blue, one of bright scarlet and one of the cream color of the undyed flannel. The size of the pattern is three feet twenty-seven inches by six feet nine inches or twenty-three and one-half square feet, therefore, forty-six yards of flannel will be needed to make the rug. The allowance of material is from two to one and one-half yards of flannel to one square foot of hooked rug surface. Divide the flannel into the following amounts: Twenty-four yards for the light brown used as

a center or the ground of the rug pattern; six yards for the border, dark brown; four yards for the cream color for the fret. The scroll and the floral motif in the scarlet, ten yards and two yards of dark blue for outlining the scroll and floral motif.

PREPARING MATERIAL

The material which is used to make the woolen rug is a good quality of unbleached twill flannel. It costs retail, from thirty to thirty-five cents per yard but by buying it wholesale in the bolt of sixty yards or so, it comes considerably cheaper. All the colors for the rug are to be hand-dyed except the blue, which can be bought commercially dyed. This color is of the dark blue of dark blue flannel shirts and can be procured by the yard at any dry goods store. The directions for the treatment of commercially dyed flannel, are given later on in this same chapter.

The flannel for the wool rug is dyed before it is cut into strips. After it has been divided into the desired amounts and dyed, subdivide the lengths into single yards. Roll each yard into a tight roll and tie the roll at four inches from the selvage and in the middle firmly with

a cord. Cut the flannel strips off the rolls with a very sharp knife just as if you were slicing a loaf of bread. Make the strips one-fourth of an inch wide and cut them as evenly as possible.

DYE RECIPES FOR THE TEA CHEST PATTERN

The ingredients needed for dyeing with catechu brown are two ounces of catechu paste, two ounces of bichromate of potash and two ounces of copper sulphate.

Catechu for Wool: Catechu brown has been given once in the chapter on the crocheted rug but there it is to be used to dye cotton. There are very few dye recipes which can be used in the same way on silk, wool or cotton. While there is very little difference in the recipe for catechu brown on wool, there is quite enough to make it worth while to use a special treatment for each material. Catechu comes in the form of a dried paste and is the sap of several East Indian trees preserved in this way. It is a permanent dye, very fast and comparatively little affected by light and washing. It is used with two chemicals as mordants, copper sulphate, commercially sold as blue stone and bi-

chromate of potash. The chemical action of these mordants is similar to those used in indigo and in iron buff. The catechu becomes deoxidized in the first dye bath with the copper sulphate and reoxidized in the second dye bath with the bichromate. In oxidizing the Japonic acid is precipitated in the form of an insoluble brown dye on the fabric.

Soak a 2 ounce piece of catechu over night in an earthenware bowl. This softens the paste and makes the dyeing easier. Tie the paste in a little cotton bag. In the morning when the paste is all dissolved, put the contents of the bowl into the dye kettle with four gallons of boiling water and one ounce of copper sulphate. Wet the flannel reserved for the darker brown, used in the border of the rug, in warm water and dip it in the dye bath. The flannel must be wrung out and shaken out before it goes into the dye bath so that its temperature is as even as possible. The hotter portions of any material absorb the dye more rapidly than the cooler parts, and thus it may become unevenly colored.

Let the flannel boil from one to one and one-half hours keeping it as much underneath the water of the dye bath as possible. Keeping it under the surface of the water insures greater

evenness of color. After the flannel has been boiled, take it out of the dye bath and pass it through a solution of bichromate of potash. It may stay about five minutes in this solution which is made of one ounce of the bichromate to one gallon of water. Do not wring out the flannel after it comes from the bichromate bath, but let it drain in a room of moderate temperature until it dries. Then wash carefully to remove all dye particles. Do not rinse until it has been first dried and then treat it as one would fine woolen underwear. Hot water or excessive heat of any kind, or excessive cold, has a tendency to shrink flannel.

The flannel reserved for the lighter tone in brown is treated in precisely the same way. Keep the original dye bath. Do not add any more catechu but renew the mordant, one ounce of copper sulphate. Dip the flannel in the dye bath and let it boil for only an hour, then put the flannel through a fresh bath of the bichromate of potash and proceed as with the darker brown. Slight unevennesses of color tone are not unfavorable to the appearance of the rug, especially if large masses of the same color are used. But with the inexperienced dyer the material is oftener mottled than not, so it does not seem wise to work for a mottled

effect until one has more command of dye processes. Then one can do it by a more intelligent method than by slipshod work. The method recommended for mottled effects is called dyeing by reserve and is found in the chapter on the knitted rug.

Scarlet with Cochineal: The only other color to be dyed for the tea chest pattern is the scarlet red with cochineal. The ingredients needed for this are two ounces of grain cochineal, four ounces of oxalic acid, four ounces of stannous chloride in the form of single muriate of tin, and one ounce of cream of tartar.

Cochineal is the coloring matter which comes from a dried insect found alive on a species of cactus and is largely cultivated in Mexico. The exact shade of scarlet which comes from cochineal cannot be produced by any other dye. It is a red of peculiar brilliancy and quality and it is also permanent.

Tie the grains of cochineal in a cotton bag and soak in an earthenware dish with cold water. Always use earthenware to soak dyes for it has no chemical effect on the pigments. And cold water draws out the pigment better than warm water or hot water. Now fill the dye kettle half full of cold water and add the cochineal and the other ingredients. Let them

come to a full boil and boil for ten minutes; then fill up the kettle with cold water and put in the moist flannel. Let the dye bath come to a boil very slowly taking from one hour to three-fourths of an hour in the process. After the boiling point is reached, boil for half an hour. This is a rather difficult recipe to use so be very careful to carry out the instructions exactly. If the worker does not wish to use the cochineal scarlet, it is possible to get a fairly soft tone of salmon pink by boiling ordinary red flannel in washing soda. Boil until no more color comes out and the color is modified by this artificial method of fading. Do not use any more soda than necessary as it is an alkali and alkalis have a tendency to make wool very harsh and brittle. The dark blue flannel used in our rug pattern may be also boiled out in this way.

MAKING THE STENCIL

Enlarge the tea chest pattern by the same method as used for the flower basket pattern in the cotton rug, but instead of drawing it on the burlap directly first draw it on a piece of tough wrapping paper, three inches larger all around than the measurements of the rug. Draw it on with soft stick charcoal as

it can be easily rubbed out in this medium. If the drawing has been well-done it need not be transferred to another piece of paper but if the paper has been weakened by rubbing out, the drawing must be transferred to another piece of paper the same size with carbon copying paper. After it has been transferred or drawn, saturate the paper with equal parts of linseed oil and turpentine and a little Japan dryer. Cover the paper to the very edge. The three-inch margin all around the pattern prevents the color used on the stencil from staining the rug pattern. Commercial stencil paper can be used but manila wrapping paper cuts more easily. A pocket-knife can be used to cut the stencil or a regular stencil knife can be bought at a painters' supply store. The commercial stencil knife is weighted and easier to use as it does not have to be pressed down as hard as an ordinary penknife. The regular stencil knives cost seventy-five cents.

After the oil on the paper has sufficiently dried out, lay it on a piece of moderately thick glass and cut out the stencil by following the lines marked on the paper. Do not cut into the background of the design and do not pull out the cut parts until all the cutting is finished.

Pulling out these cut parts weakens the stencil, makes it buckle up and more difficult to cut. Cut well down into the corners of the design, else the pieces are apt to stick when they come to be pulled out. After the stencil is all cut, pull out all the cut parts and shellac it with yellow shellac dissolved in wood alcohol. This stencil also can be made by the process given in the chapter on newer methods of making stencil.

PRINTING THE PATTERN

The foundation for the wool rug is prepared in exactly the same way as for the cotton rug. Get a cheap shaving brush and cut off until it measures one inch long. Cut it as evenly as possible. These brushes cost about ten cents. To print the foundation, lay it on a large table, place the stencil on it and pin it down firmly with dressmaker's pins. Dressmaker's pins are steel and do not bend. Brush over the holes in the pattern with liquid bluing; rub it in well and be careful not to shift the stencil. After the foundation has been printed, let it dry thoroughly.

HOOKING THE WOOL RUG

Mount the foundation on the rug frame in exactly the same manner as directed for the cotton rug. The processes in these two rugs are similar except that the loops in the wool rug are pulled up unevenly and clipped. Draw every three loops up to a height of one-fourth inch and one loop to three-eighths inch. Thus when the rug is clipped, only every one in four loops is cut off.

After each frameful has been hooked, clip the rug until it is completed. Use a strong pair of shears and holding the left hand under the rug, lift up that portion of the surface which is to be clipped. Clipping the rug improves the texture and the pile. The old-fashioned hooked rugs were not clipped and consequently were not as attractive as those made by the newer method.

SOME OTHER PLANS FOR HOOKED RUGS

Martha's Pattern: Martha's pattern is a rug plan to be made out of old materials. It can be made in mixed tones of red, dark blues, greens and browns. With these colors, blacks, grays, creams and whites are also needed.

The tones may vary from very dark blue, red, green or brown to medium tones of the same colors. Too great a contrast is not good. There are some colors which, if one has not enough of the reds, blues and grays, can be bought to help out. All colored flannels are improved by a hard boil before they are used, that is, those which have been bought. If they have a tendency to bleed as running is called in dyers' terms, the artificial fading overcomes this tendency. In boiling the loose pigment comes away and the color that is left is permanent. The flannel need not be artificially faded if it has been in use for a long time.

The size of Martha's pattern is three feet eighteen inches by five feet eighteen inches. Prepare by drawing on the design in the same manner as in the cotton rug. As it is difficult to duplicate a rug made of old materials and one does not often make more than one of a kind, it is wiser to draw it on a foundation rather than to print it with a stencil. It is better to use all woolen materials for this rug but if one has not enough of black, gray, cream-white, stockings and underwear whether of wool or cotton, or cotton with a wool finish may be used.

Outline all the figures of the design with a double outline of black and white, letting the

white outline come on the inside of the figures. First fill in the figures of the borders with the varied tones of red and brown, using the blues for the background. In the center panel of the rug, reverse this order and use the blues for filling in the figures and the reds and the browns for the background, or this whole scheme may be reversed if it better suits the amount of materials on hand. Thus with little expense an effective rug can be made and one of its charms is that it offers a field for invention; as a commercial product, however, it is not as successful as a rug made entirely of new flannel.

The Fret and Scroll Pattern: The size of this pattern is three feet by six feet nine inches. One advantage of the fret and scroll pattern is that it can be carried out in wool or cotton and looks equally well in either material. It is planned for two harmonizing colors and there must be considerable difference between their tone values. The scroll and fret should fall on the ground in either a very much lighter or a very much darker tone. For example, if this design is carried out in wool, a charming bedroom rug can be made with a cream-white ground and a medium blue fret and scroll. The materials for this scheme are easily procured as

both the blue and the cream-white flannel can be bought. It is, however, a more expensive rug than one made of hand-dyed flannel. Blue and white cotton can be used with this design to make a bath rug by using a background of mixed blue cottons and the fret and scroll in unbleached or pure white. The cheapest grade of blue cotton dress prints may be used. Or the blue can be dyed by the indigo blue recipe in the chapter on the knitted rug.

Another plan for a cotton rug is to put the fret and scroll in cream-white unbleached cotton musline and the background in the iron buff which is found in the chapter on the needle-woven rug. The worker can also work these designs in other color combinations by using the dye recipes given in some of the other chapters. These original plans will be found most entertaining when carried out.

THE NEEDLE-WOVEN RUG

CHAPTER VIII

THE NEEDLE-WOVEN RUG

THE needle-woven rug is one of the most interesting examples of craft work, because it stands between the rugs of the needle and the loom. The rugs of the needle are the hooked, the knitted, crocheted and braided rugs, made with one single tool. It bridges the gap between these strictly hand-made rugs and the fabric which though hand-made is still mechanically produced on a primitive machine. The needle-woven rug is a combination of the needle and the loom. The needle corresponds to the shuttle, the comb to the reeds and the metal eyelets to the heddles. The loom of Colonial days grew logically from this primitive one.

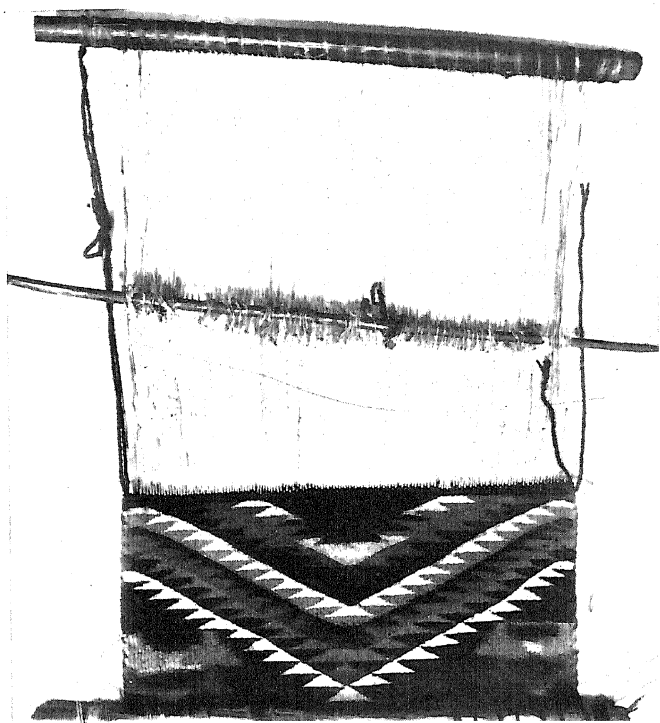
The process used in making this rug is therefore the simplest form of weaving. It is quite identical with the earliest work of primitive man, and is still practised among undeveloped people. Our own Navajo Indians of Arizona, for instance, weave in this way the

beautiful rugs known and sold commercially as Navajo blankets, using the most primitive kind of a loom and a needle made of bone.

The rude frame which is used to make this rug is really the forerunner of all looms and undoubtedly represents one of the earliest efforts on man's part to construct an implement to aid him in a peaceful occupation. It is absolutely the simplest contrivance on which woven textiles can be made.

The rugs which are woven on this primitive loom are exceedingly strong and serviceable. Not only because of the kind of thread used in them, but because of the manner in which the thread is packed and pushed together. The Navajos use their own loosely spun wool but this the handicrafter cannot of course get. There are, however, materials which are similar in effect, and which when woven, will give a surface to the rug as characteristic as that of the Navajo. Indeed it is quite similar to it.

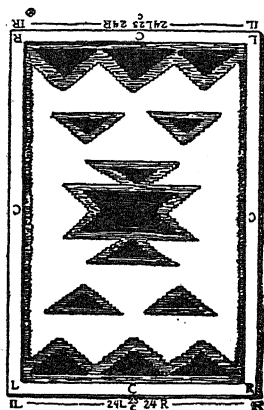
The materials for this rug must be therefore one of those loosely spun yarns which give the finished rug texture by the felting or the matting together of the soft fiber of the threads. Cotton candle wicking such as our grandmothers used to knit scrub- and wash-cloths, is the most easily obtainable soft cotton yarn



A PRIMITIVE LOOM

and when well packed together it makes a surface almost identical with the felted surface of the wool Navajo rug. Candle wicking is easily dyed too and this recommends it.

The rug in the illustration is made of candle wicking, dyed in four colors, light gray, light



The design.

blue gray, light gray green and very dark navy blue.

Another very satisfactory and convenient material is the well-known cotton cloth torn into very fine strips and these strips used as yarn. This is what we shall use for the model rug. This material will be found very effective for the raveled edges of the torn strips make a

delightful and varied surface because they felt and mat together in the same way as the loosely spun woolen or cotton thread. This rug will be serviceable as either a bath mat or a bedroom rug.

The model is made in three colors, the natural color of the unbleached cotton cloth, a brown called manganese brown in dyers' terms, and the iron buff. This latter color which is familiar to all farmers' wives the length and breadth of our United States, is made by them with copperas and soft-soap. These three colors harmonize perfectly and are very simply and easily produced. The design is characteristic of this type of weaving.

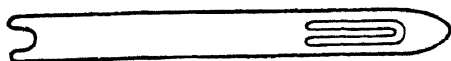
MATERIALS

The unbleached cotton cloth should be of the very coarsest kind, costing not more than four or five cents a yard. The size of the rug is twenty-four by forty-five inches finished and the number of yards of cotton muslin required is sixteen. Divide into the following amounts: six yards must be kept in the original color of the unbleached cloth. This is used for the lightest tone in the rug which we shall call tone No. 1. Six yards must be reserved for

tone No. 2 or the next lightest color, the manganese brown, and the remainder of four yards for tone No. 3 the very dark buffish yellow called iron buff. These strips of cotton cloth will form the woof or surface threads of the rug. For the warp or the threads which make the foundation, hammock twine No. 24 is used. Warp thread must always be strong to hold the rug together for the warp may well be called the framework of the rug. Hammock twine is a very firmly twisted cord and is suitable to use as warp. The cotton and the twine are the only materials needed in making the needle-woven rug.

TOOLS AND UTENSILS

The tools are three in number: the loom, which is a simple wooden frame; a large



The needle.

wooden needle such as is used in netting hammocks; a very coarse comb of wood if possible, if not, of bone or horn.

DYESTUFFS

The chemical needed for making manganese brown is permanganate of potash. Remember that this is poison and must not be taken internally. Its external use is harmless. With the permanganate tone No. 2 of the color scheme is produced. Tone No. 3 is dyed with copperas or green vitriol known chemically as ferrous sulphate. It is the red sulphate of iron, or iron rust. To produce iron buff a strong alkali is required in connection with the copperas. This is introduced in the form of a strong washing powder or powdered soap.

Two wooden washtubs for vats and two wooden sticks the kind used to stir clothes when boiling, and which are convenient to handle the goods in the vat are needed. It is not wise to use metal vessels unless one knows that they have no chemical effect on the dye. Porcelain is absolutely safe to use being to all intents and purposes not a metal at all but rather a china surface. In any process of dyeing remember that it is necessary to follow closely to the directions and to use only the things which are ordered in the recipe. Nothing else will do just as well.

DYEING THE CLOTH

The first step in this instance is tearing the unbleached cloth after the manner recommended. First tear the goods into lengths of two yards each. This will make eight pieces. Then each two-yard piece must be torn into strips, one-half inch wide. Tear the goods carefully for the narrower the strip the more difficult it is to tear.

Divide the width of the goods by the desired width of each strip, one-half inch in this instance. This means that if the unbleached cotton cloth is thirty inches wide, sixty strips will be torn from it and sixty strips necessitate fifty-nine cuts in the end of each piece of goods. The width of the unbleached cotton cloth varies however, and the count might not therefore come out exactly in accordance with these numbers. Therefore begin at one selvage and follow each cut consecutively at one-half inch intervals until the other selvage is reached, unless of course the goods is thirty inches wide. Then this precaution is not needed. The cuts, therefore, will be exactly parallel to the selvage of the cloth. Make them about three inches deep.

Each set of these strips made from a two-

yard length of cloth must be tied together loosely in a bunch by itself. The sixteen yards of unbleached muslin therefore, will make eight bunches.

Put the eight bunches of strips into a tub of boiling water and let them stay until the water is cold. This is done to remove the oil from the unbleached cotton, as all unbleached materials have a certain amount of cotton-seed oil in their threads. In the bleached material this oil has been removed by the strong alkali of the bleaching powders. These bleaching powders of course weaken the fabric. Partly for this reason, but more especially because the bleaching alkali may linger in the goods and seriously interfere with the process of dyeing, it is always wiser for the handicrafter to use unbleached cloth for all purposes.

After the eight bunches of cotton strips have been steeped in hot water, three of them must be dried and set aside for the lightest color in the rug, tone No. 1. The others may be hung to drip. They need not be dried for all materials must be dipped in the vat while moist because the wet cloth takes up the dye much more readily and easily.

The next step is to dissolve two ounces of permanganate of potash in two gallons of warm

water. The permanganate is a bronzy looking powder which turns a brilliant crimson when put into water and when the three bunches of cotton strips are dipped into the dye, they will also take on the same crimson tone. When removed from the dye bath and hung in the air, however, they will gradually turn the soft color referred to as manganese brown. For this color, tone No. 2, the strips must be dipped three times, and after each dip must be hung in the air to drain and turn brown. After each dip the tone will be a little darker and the three dips bring it to the desired depth. Dry the three bunches thoroughly after dipping the third time and after drying, wash them thoroughly with soap and hot water, or until all dye particles are loosened. Then dry again, and they are ready to lay aside until used in the weaving.

Now we are ready for tone No. 3, the iron buff. Take the two remaining bunches of strips and moisten them, if they have dried, and then prepare the dye bath as follows: Dissolve one-half pound of copperas in the tub containing two gallons of warm water. Stir it about until thoroughly dissolved. There should be no lump of copperas left in the water. Then dissolve one pound package of soap pow-

der in another tub in the same amount of water and see that no lumps are left undissolved in this. Drop the strips into the tub containing the solution of copperas and see that it penetrates thoroughly to every part of the material. When you are sure that it has done this, take them out and drain for a few minutes. Then dip them into the tub containing the solution of soap powder. This must be repeated three times, draining each time after removing from one solution before dropping them in the other. Use the wooden sticks to handle the material when dyeing, because this dye solution stains the hands very badly. After dipping a third time in the solution of soap powder the bunches of strips are ready to hang in the air to dry. After drying, they must be rinsed and dried again. Then they are ready to lay aside until they are needed in weaving the rug.

When the cloth is dipped into the soap powder solution and after being dipped in the copperas solution, it turns a dull greenish color and has an unpleasant odor but these manifestations disappear after it has hung in the open air for awhile. There returns gradually from the dull green to the desired tone of reddish yellow just as the cloth in the first

instance, when dyeing with the manganese brown turned from crimson to soft brown.

The cause of this transformation in both the dyestuffs used in this chapter, is due to the oxidizing of the chemicals which have been deoxidized by being brought into contact with other chemicals in the dye bath. Both the permanganate of potash and the copperas undergo a chemical change when dissolved, and thus acted upon by the elements in the water and air. And the copperas is still further changed by being subjected to the elements in the soap-powder solution. When the goods dipped in either of these baths is hung in the open air to dry, the chemicals gather again from it the elements of oxygen of which they have been deprived, and by this process return to their respective brown and buff. It is this very feature of oxidization that makes these two dyestuffs so permanent.

THE DESIGN

The design is developed in this rug as in all the other rugs by the tools and materials used and by the manner of using them. The tools and materials govern the manner in which the

rug is made. That is, they determine its technique; the technique limits the design and produces effects which are typical of the process and which give the finished rug its characteristic appearance. The worker should always recognize that the technique of any process determines the character of the design and should never attempt to produce a design which is manifestly unsuited to the medium in which the rug is made.

The design for the needle-woven rug must be simple in order to accord with the technique. It must contain only those ornamental features whose lines may be closely related to the structure of the rug. This structure consists of two sets of straight lines crossing each other at right angles. The vertical set corresponds to and is composed of the warp threads of the fabric. The horizontal set corresponds to and is composed of the woof threads or filler. On these two sets of lines the design must be planned if it is to conform to the structure of the rug.

Hence it is immediately apparent that vertical, horizontal and angular lines alone are adapted to this style of technique as these are the only lines conforming strictly to the structure of the rug. These are the only appro-

priate lines to use. They are as characteristic of the needle-woven rug as they are of the closely allied Navajo blanket, while any form requiring curved lines is totally out of place because it does not conform to the rug's structure.

There are three salient features of the needle-woven rug. The one that is most important because it has a decided effect on appearance of the design results from the stepping at the edges of the pattern. This stepping is necessary because the pattern is first woven into the warp threads and the background is afterwards woven into it. The manner in which this is done will be carefully explained when we come to weave the rug.

The second effect is produced by the difference in spacing between the warp threads for while these threads are concealed in the finished surface of the rug by the woof or cross threads, they have a determining influence on the wave intervals of the surface. These undulations are long or short according to the distance between the eyelets on the rug frame which hold the warp threads and by which they are regulated. This is mentioned to show the worker how closely ornament in handicraft is related to structure.

The third feature of the rug which is also a surface effect has already been mentioned. This is caused by the matting or felting of the loose fibers of the woof.

The worker must consider the color of the rug with the design and with such a simple design as the structure here demands only a simple color scheme is appropriate. It is well to limit such a scheme to three colors or rather to two colors as one color is represented by two tones. By tone in color is meant depth whether it is light, dark, or medium.

In the color scheme chosen for this rug yellow predominates or is the keynote. It is frankly expressed in the iron buff tone No. 3. Echoed in the unbleached yellowish tone of the cotton which is tone No. 1 and moderated by the soft manganese brown tone of tone No. 2. This tone No. 2 is composite. It has yellow in it so that it may harmonize with the other two colors. But it contrasts sufficiently with them to emphasize them. Tone No. 1, the lightest color of the design, is used in larger proportion and in more unbroken spaces than the two other colors either taken singly or together. Tone No. 1 is the background color while tones No. 2 and 3 are the colors used in

figures for the design, which thus stands out in darker tones against the lighter one. Tone No. 2 is used actually in about the same proportion as tone No. 1 but it does not appear so because the surfaces it covers are much more broken up. You will remember that we reserved the same amount of material for tone No. 1 as for tone No. 2.

The reservations for both the iron buff and the manganese brown have been liberal because it is better to be on the safe side and have a little left over, rather than to need more of any color than one dyeing will furnish; for it is almost impossible to reproduce conditions under which dyeing is done and consequently to reproduce identical color. Furthermore, there is a great difference in the way in which workers use materials. Some pack and press it down more than others and will therefore require more.

Tone No. 3, or the iron buff, is the most vivid color in the design. For this reason it is used in smaller quantities than the other and in a more striking way for it accents sharply certain portions of the design. The central figure, the four minor figures, parts of the border, are picked out with it.

THE LOOM OR RUG FRAME

This primitive loom or frame is exactly like the frame used in making the hooked rug; the proportions only are different. It is a rectangular frame made of four wooden bars which are one by two inches in thickness. There are two pieces fifty-three inches long which form the sides and two pieces thirty-two inches long which form the ends. These are fitted together at the corners with pegs and little iron shutter catches—the pegs in the ends of the longer pieces fitting into the holes at the ends of the shorter pieces. In fact exactly like the rug frame in the hooked rug. Pine, basswood or locust are the best woods for the frame. The broad side of the bars which is the two-inch dimension, should form the face of the frame and along this surface on the thirty-two inch pieces the double-headed carpet tacks which make the eyelets which hold the warp threads are to be driven. These double-headed tacks, forty-nine of them, are placed in a single row along the horizontal bars. They begin two inches from the edge of the upright bars with one-half inch between the point of one and the point of the next. The

warp thread is run through these little eyelets which are formed in this way by the tacks.

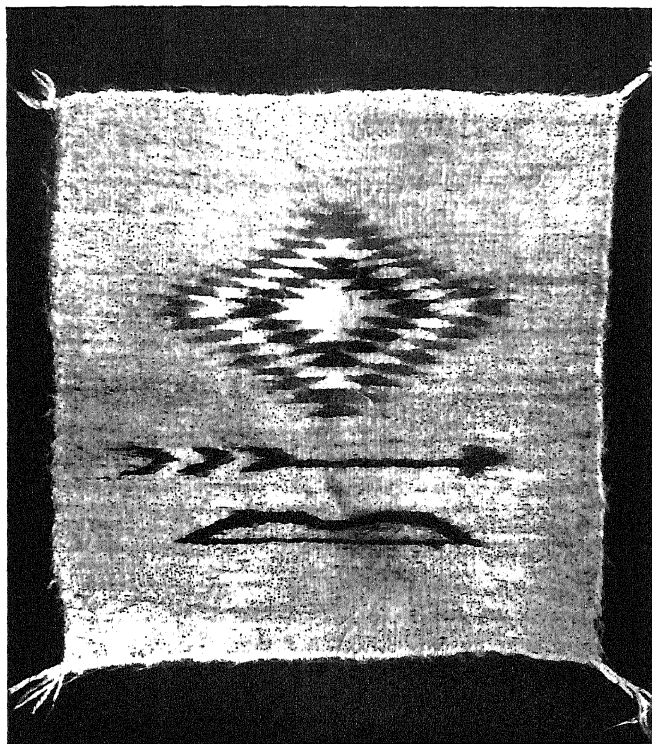
SETTING UP THE WARP

Mark a large "letter L" on the left-hand corner of the frame and a large "letter R" on the lower right-hand corner. Mark this carefully and distinctly with ink. On the lower horizontal bar of the frame, count off the eyelets and mark the center one or No. 25 C and then mark the left-hand eyelets beginning from the center, numbers 24 to 1 L and the right hand beginning from the center or from No. 25 but not including it of course, 24 to 1 R. Turn the frame completely around and mark the eyelets on the other horizontal bar in exactly the same way. Then also indicate the center of the upright bar on either side by a large letter "C." The unbleached hammock twine used for the warp thread is not dyed. It is used in its natural color. The collection of these warp threads which forms the structure or framework of the rug is called the warp. The warp holds together the cross threads which are collectively called the woof. The warp in the needle-woven rug is one contin-

uous thread and runs uninterruptedly up and down through the metal eyelets which are used for carrying it.

Measure off one hundred yards of warp thread from the skein of hammock twine and wind it on a wooden spool or bobbin. Any conveniently shaped smooth piece of wood will do. After it is wound, take the end and thread it through eyelet No. 1 L on the lower bar of the frame. Then carry it up and thread it through eyelet No. 1 R on the upper bar. Carry it from eyelet No. 1 R on the upper bar to eyelet No. 2 R also on upper bar. Thread it through eyelet No. 2 R before bringing it down to eyelet No. 2 L on the lower bar. Carry it then to No. 3 L on the lower bar and then to No. 3 R on the upper and back to No. 4 R on the upper and down again to No. 4 L on the lower. Continue this way, always passing from each eyelet to the next, threading two at a time on the same bar until the last two are reached, one on the upper bar and one on the lower bar.

Now unwind whatever remaining thread there may be on the bobbin and pull the continuous warp thread moving through all the eyelets until a free end of two and one-fourth yards is left over at eyelet No. 1 L on the



A NAVAJO RUG IN GREY, BLACK AND WHITE, OF
THE UNDYED WOOL. SHOWS THE FELTED
SURFACE MADE BY THE MATTING
TOGETHER OF WOOL FIBRE

lower bar. Carry this end to No. 1 R on the upper bar, then wind the end of the warp around the frame and fasten it securely by tying it. After it is tied pull all the slack out toward the other end as the thread must be doubled through the last two eyelets just as it was through the first two. Tighten up the warp again and tie the end to the frame. If there is any slacking in the thread the rug will be found uneven in the weaving; the double warp threads at the side of the rug hold the woof threads in place and strengthen the rug on the edges where it gets most wear. The space within the framework of the loom has now been filled up with warp threads except along the sides of the upright bars. Here about two inches remain open. The warp is now set up and we are ready to put in the cross threads or in other words to weave the rug.

WEAVING THE RUG

The old adage, "Well begun is half done," can never be more appropriately applied than to craft work. Indeed it might be said that preparation is the most important of all its phases. Get tools and materials together and in good order before undertaking to do any-

thing and never work with poor tools. There are bound to be difficulties with every problem. But they are tremendously lessened through preparation. Have everything that you need within arm's reach and make a mental note of each thing so that nothing is forgotten. Getting up to hunt for a missing article after work is once started, is not only discouraging but it is demoralizing. Finish the work as you go along and do not leave anything thinking that you will come back to it later, that usually means that the thing is difficult to do and needs patience. Patience is cultivated by perseverance and both are just as important factors in rug-making as the tools and materials. Do not sit down to weave your rug when you have less than two hours' time before you to devote to it.

The process of needle-weaving is exactly like darning a stocking. The threads are set up and the space is filled by weaving cross threads in and out through them. In one case a darning needle is used and in the other a hammock needle or a bodkin.

Begin the weaving at the bottom of the frame and with the needle threaded with a strip of unbleached cotton cloth, weave across three

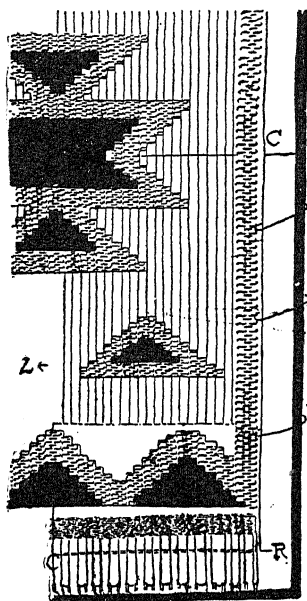
times in and out between the warp, going back and forth across the frame from side to side and then pack these rows down firmly with the comb, by putting in its teeth between the strands and the warp and combing it hard down against the woof just as if you were combing hair. Pack and weave down the woof threads until a space measuring three inches is filled. Measure this with a tape measure. These three inches will be unraveled after the rug-weaving is finished. It is put in in order to pack the other woof threads down against it. The ends of the warp which are left free afterwards when it is unraveled, will be knotted into fringe at the ends of the rug.

Next weave a space with hammock twine to measure one and one-half inches. This is called the heading and is always woven in rugs with the same kind of thread that is used for making the warp. After the heading has been woven in, weave four times across the rug with tone No. 2. Weave from edge to edge. Pack and press down firmly with the comb.

Then start tone No. 3 at warp thread No. 3 L and weave across to warp thread No. 15 L and back again to No. 3 L in order to have two rows of dark yellow or the iron buff on these

warp threads. The warp threads mentioned in the count are always included in it, and must be covered by the woof.

Now drop off one warp thread on each side or step in and up to the two next warp threads No.



Section of rug showing "stepped" edges in design.

4 and 14 L respectively, weaving once back and forth thus again making two cross rows. Continue this process of stepping or dropping off one warp thread on each side and weaving

twice across until warp thread Nos. 8, 9, and 10 L are reached and the woof is woven into them. We now have part of the center figure, a pyramidal form with a blunt end and the characteristically "stepped" sides.

Repeat this form with tone No. 3 across the rug warp threads No. 19 L to 19 R and also on warp threads 15 R to 3 R. This finishes in centers of three pyramidal figures. Do not press down hard on these figures with the comb. In putting in the pattern the worker must not comb down the woof hard until after the background is woven in as the threads of the background must be slipped in between the threads of the pattern. This cannot be easily done if the woof threads which make the pattern are too firmly combed down at first.

Take a strip of tone No. 2 and beginning on the outside edge of the rug at warp thread No. 1 L weave over to warp thread No. 3 L back to No. 1 L and so on back and forth until No. 8 L is reached. Carry the woof each time around warp thread No. 1 and around the warp thread at the inside which terminates that figure of the pattern. This fills up the space against the four rows of the same color at the bottom of the rug, reaches from the edge to the already woven figures of dark yellow made

of tone No. 3. Repeat this on the right side of the figure.

Every time that tone No. 2 reaches tone No. 3 remember that it must weave over the warp thread which holds the loop of that color and must be slipped in between the rows of No. 3. Throughout the weaving of the entire rug, this occurs whenever and wherever a loop of woof of one color reaches the warp thread which holds the loop of woof of another color.

Now take a thread of tone No. 2 and beginning at warp thread No. 1, 2 and 3 L weave up on these three warp threads until with a gentle packing down, this woven strip measures twenty-one inches, and reaches up to the middle of the rug. Repeat this on the right (R) hand side. This band forms a narrow border on the sides of the rug, and is a serviceable feature because it brings a darker color on the edge where the rug would otherwise soil more readily.

Before beginning to weave the remainder of the pattern, cut a number of pieces of the hammock twine twelve inches long and beginning at the heading slip one through the woven portion of the rug and around the upright bar of the rug frame and tie it securely. Do this at intervals of four inches on each side of the rug.

This is to hold the edges of the rug in place, to steady them and to keep them at a distance of two inches from the inside edge of the upright bar of the frame, for there is always a tendency in weaving a rug to narrow its width by pulling together the warp threads and crowding them in toward the center of the rug. Fastening the edges to the bars overcomes this tendency and keeps the rug the desired width.

Now begin work again with strip of Tone No. 2. Start at warp thread No. 5 L and weave to No. 13 L and back again. Then step up to No. 6 L and across to 14 L and back. From No. 7 L to No. 11 L and finish with the usual two rows of cross on Nos. 8, 9, and 10 L. Always remember that where two warp numbers are given, the regulation two rows must be woven. Now repeat this on the right (R) side. When finished it should form a part of the border around the iron buff figures.

Go to warp thread No. 15 L and over to 19 L up to 12 L to 23 L stepping out one warp thread each time. Now repeat this on the (R) right side. The first rows of this weaving Nos. 15, to 19 L fall against the first four rows of tone No. 2, filling up all the space left there and continuing the border for the iron buff figures. To complete this border, go on as follows: at

warp thread No. 12 L go to No. 16 L and from No. 11 L to No. 15 L from 10 L to No. 14 L. Repeat this on the (R) side.

To surround the remainder of the iron buff central figures begin at 18 L to 22 L to 19 L to 23 L to 20 L to 24 L. At 21 L just above, go to 21 R. From 22 L to 22 R. From 23 L to 23 R and finish with 24 L 25 center and 24 R. Now the right (R) side, on 22 R to 18 R to 23 R to 19 R to 24 R to 20 R. The central figure of the border at the lower end of the rug is finished and the border at one end is completed. Fill in all around these woven figures which are in tone No. 2 and 3's with the background tone No. 1 or the lightest tone in our color scheme. Comb and pack down firmly over the whole surface as the rows of the No. 1 strips are woven in. Keep on with the background tone until all the woven figures are surrounded and the rows of woof run across from side to side of the rug border in tone No. 2.

Measure always from the heading and when enough of tone No. 1 has been woven to measure nine and one-half inches from heading begin again at warp thread No. 5 L to warp thread No. 23 L using tone No. 2. Go on to 6 L to 22 L to 7 L to 21 L and then repeat this in the (R) right-hand numbers. Then

with tone No. 3 weave from 10 L to 18 L stepping on up and dropping off one warp thread on each side of the yellow pyramidal figure until No. 13, 14 and 15 L are reached. Repeat this on the R side.

Surround with tone No. 2 from 17 L to 20 L stepping up from 16 L to 19 L from 11 L to 17 L up to 13, 14 and 15 L. Complete this border in tone No. 2 by weaving from 11 L to 7 L and up on until border joins the woven portion at 13 L.

Repeat this on the R side and fill up again with background until the finished portion of the rug measures fourteen and one-half inches.

Now we are ready to weave in one-half the central figure of the rug. Begin at 14 L weave to 14 R stepping up and across until 16 L to 16 R are filled up. Then take a thread of tone No. 3; weave from 20 L to 20 R until 24 L, 25 center and 24 R are woven across, surround this with the usual border of tone No. 2 by beginning at 20 L to 16 L until 20 L and 24 L are reached. Then repeat these in (R) right-hand numbers.

Now weave from 21 L to 21 R. From 22 L to 22 R. Then over to 9 L and to 9 R until 11 L and 11 R are reached and woven across with tone No. 2.

Start now with tone No. 3 at warp threads 15 L and R stepping up until 19 L and R are filled. Surround this iron buff figure on each side with the border of tone No. 2. beginning at 12 L to 16 L on up to 15 L to 18 L and repeat this on the R side. Now fill up around the central figure with the background tone No. 1. packing and pressing down firmly with the comb until when the measurement is taken from the heading, twenty-two and one-half inches of rug is completed. This is one-half of the whole rug.

Turn the frame around and repeat the whole process of weaving, from filling in against the frame with the unbleached strips to finishing the central figure. If when the second half of the rug is completed, there should be any space intervening between it and the first half which was woven in, continue the pattern toward the center from each half, until the space is filled up. The design of the rug is planned for just this emergency as some workers pack with the comb more closely than others, consequently do not fill as much space to the given number of rows of woof.

Now cut the threads at the top of each eyelet and knot each two warp threads together. Push the knots up close against the heading so

that it shall be held very firmly. The loose ends of these threads form the fringe at the end of the rug. As there are fifty-one of them, they do not come out evenly when knotted two and two. Three may be knotted together in one of the bunches. Do not cut all the warp threads at once but only two at a time, as they are needed for tying together. Lay the rug on the floor and comb out the fringe and even it up by cutting off any longer ends. If there are any loose ends of woof thread on the surface of the rug, thread these into the bodkin and slip them in between the woven pattern. Now the rug is finished. Its surface will improve by wear for as it wears it mats and felts together and the loose threads of the warp become as one even surface.

THE COLONIAL RAG RUG

CHAPTER IX

THE COLONIAL RAG RUG

THE increasing commercial importance of the Colonial rag rug or as it is usually called the rag rug, has somewhat interfered with its development from the handicrafters' standpoint.

It is being manufactured by commercial rug houses on a basis which defies all competition from the maker of rugs on a hand loom. There is usually a marked difference in the artistic value of the commercial and handmade rugs but not sufficient to make it worth while for the average buyer to pay the difference in price if in fact this difference is recognized.

This is one of the important influences the Arts and Crafts Movement is having on commercial products. So popular has become this style of rug after having been taken from obscurity and rejuvenated by the handicrafter that all commercial rug stores keep large consignments in stock. Most of these commercial rugs are fairly presentable and vastly more desirable than the older type of ingrain or brus-

sels carpet rug of cheap manufacture. Then too, these rugs have changed the fashion of using one entire rug as a floor covering and a partially bare floor has been substituted which is much more cleanly and consequently more healthful. Who does not remember the awful days of spring housecleaning, when the carpets were taken up and shaken? Days of terror, when the air is filled with a year's accumulation of dust and dirt and when the one thing which seemed desirable was to make an escape from all the confusion.

Surely a few simple rugs which can be daily shaken out if necessary are a welcome exchange.

In former times Colonial rugs were woven of old rags, but the increased demand has made it necessary for the hand-weavers and commercial makers alike to buy and use new materials. There are certain advantages in this for it is easier to work into an established color scheme of decoration and also to reproduce rugs to order. Technically new materials have almost revolutionized the methods of rug-weaving.

On the old Colonial looms the warp was threaded at intervals of about one-fourth of an inch each through the reed. This was neces-

sary because the woof or cross-threads being made of all kinds of old and worn-out materials it had to be reinforced by the warp and the closely set warp-threads thus gave the strength and wearing quality to the woven fabric. In the modern rug the warp is threaded at intervals of one inch between the reeds. As the woof is made of entirely new materials there is no need to depend entirely on the warp for durability. From an artistic standpoint it is also an advantage to have the woof made of new and strong material and bright, harmonious colors. Almost all the modern handmade rag rugs are woven on warps of uniform color, either soft cream color of unbleached thread or some equally inconspicuous tone. This with the bright colors of the new materials makes an agreeable contrast.

In olden times the Colonial weaver always used old material on a closely set warp of hand-dyed or unbleached linen thread. The rags used for the woof were, more often than not, pieces of hand-woven linen which having served their purpose in the household were laid aside for winter rug-weaving. The harmonious tones of these fabrics, indigo blue usually predominating, always made artistic and attractive rugs.

A surviving link between these older industries and the modern handicrafter, is the rag carpet-weaver found plying his trade in villages and small towns. For the most part these men while having carpet-weaving for a regular trade, supplement it with some more lucrative employment which does not hold out during the entire year. For instance, in coast towns where men follow the sea in open weather, during the more severe season when they are unable to fish and sail some of them work at their looms. The village weaver while skilled at his craft, is untrained as a designer. The farmers' wives bring in their balls of cotton and woolen rags numbered in the order in which they are to be woven, and he assumes no responsibility as to the results. He is suffering from too many serious economic handicaps as it is, and no doubt it will not be long before he and his loom will have altogether disappeared.

The only warps it pays these weavers to use are the commercially dyed cotton threads in aniline reds, greens, purples and yellows. In order to cheer up the sad-looking gray and black rags which mostly constitute the color of the accepted dress of our day he mixes together in the same warp all these colors with fearful

consequences. Small wonder that his days are numbered.

The handicrafter in revising this old trade has again raised its standard of artistic excellence established in Colonial times, and has reunited art and craft. Indeed the only way at present in which the handicrafter is able to make salable rugs is to weave them of hand-dyed materials taking the greatest care to produce a better rug in wearing quality and design than can possibly be made by commercial methods. By giving them that individual touch which is undoubtedly recognized by some but for which there is only a limited market the craft may be kept alive.

The occupation of weaving is a delightful one. It has the same soothing effect as does knitting and so the worker may at least find much pleasure and even a little profit in hunting up an old Colonial loom and setting it up in the city studio where the noise of the treddles, heddles or bar, mingle strangely with the clang and uproar of the busy city street.

THE COLONIAL LOOM

It is not an easy thing to find an old colonial loom. It is necessary even to advertise

in farm journals, look around in junk shops and sometimes hunt for months before one can be literally unearthed, and set up ready for weaving. There are of course the more modern mechanical iron looms but they are rather difficult to manage technically and are not as docile or satisfactory to work with as the old Colonial loom. Sometimes after finding an old loom, parts must be replaced. This is unfortunate for it is most difficult and expensive to find some one who can do the work. There are firms who keep parts of looms especially the heddles and reeds, but the wooden parts must usually be duplicated by hand.

The parts of the old Colonial loom consist of four square wooden posts usually about four inches thick and seven feet high. These four upright posts are connected at the top and base by horizontal bars, some of which are actually parts of the framework used to keep the loom steady and others which are more directly parts of the mechanism itself. For instance, there is a cross beam on the top of the loom midway between the ends from which come two smaller upright posts supporting the reeds and batten. At the back near the bottom is the warp beam also a cross beam, and underneath near the center is the cloth beam. In front the weaver sits

on a crossbeam and there is another smaller one on which the warp is tied. Other parts of the loom are the heddles made either of thread or metal which resemble small eyelets, which hold the warp thread. The reed also holds the warp. A wheel down by the side is supplied with a crank for winding up the woven rug material. There is a shuttle for holding the bobbins and another wheel for winding bobbins. The wheel for winding bobbins may be made of an old flax spinning wheel. Then there is a warping machine which is serviceable though nowadays warp can be procured already beamed.

If it is possible to find a practicable carpet weaver to help with the first experience in setting up warp, the handicrafter will be saved time and worry. The setting up of warp has almost as many difficulties as weaving and is much too intricate a process to be successfully carried out by written instructions.

After the warp is beamed there is little difficulty in carrying the warp threads across the loom and through the reed and tying them on the crossbeam in front. All these details are easily mastered when one has once seen them worked out but until then they seem full of technical mystery.

PREPARING THE MATERIAL

In buying material for Colonial rugs whether they are to be made of hand-dyed or of already commercially dyed material, it is cheaper to buy what is known as seconds and mill remnants. There are many commercial houses in a large city which deal in seconds and odds and ends of material which having some imperfection cannot be sold by the retail houses, but which does not lessen their value as rug rags. Materials of the weight of the cheapest grade of unbleached cotton muslin are the most practical when commercially dyed materials are bought. But if the material is to be dyed, it is better to use the unbleached muslin itself which I have recommended throughout the book for making rugs.

In either case the material can be cut or torn. It depends on the kind of texture one wishes for the woven fabric. There are many advantages in tearing the cloth because the little unevennesses coming through the torn material give an attractive and original texture in the finished rug. If the material is to be cut, roll it and cut it with a knife by the process recommended in the chapter on hooked rugs. There is also some difference in texture in rags

which have been torn before they are dyed, and those which have been torn after dyeing. It is wise to experiment with these two kinds in order to get a different quality of surface.

Tear all the materials of the quality and kind recommended here into strips of one and one-fourth inches in width for general use. This width must be lessened if the materials are heavier and increased if they are of lighter weight.

Wind all the strips into balls so that they may be easily rewound on the bobbins, always keeping the colors separated. The average amount of material required is two pounds to the woven yard, and about four yards of unbleached cotton cloth to a pound, or eight yards of cut up material to one yard of woven.

WEAVING A COLONIAL RUG

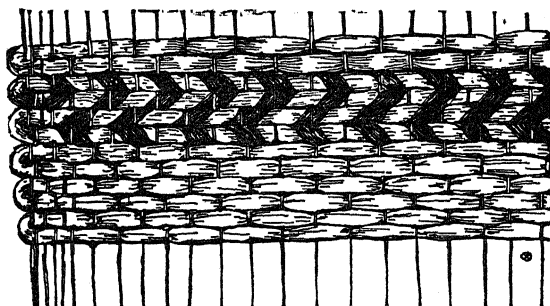
After the loom is threaded with the warp start in by weaving in a few rags of any color, in order to have something against which to press the bar. These first rows of weaving will be later unraveled and the warp used as fringe. The space should not measure less than four or five inches. In starting a rug the warp threads are apt to draw in a little and consequently a

beginner will make one end of the rug narrower than the other. Now start the heading which is usually woven of warp thread doubled and in most instances an inch and a half of heading is wide enough. After the heading comes the borders or border as the case may be. And after the border one-half the center of the rug. In beginning the rug pin a tape measure along the edge at the heading and measure as the borders and center are woven. Allow about one inch to the yard for shrinkage in making measurements of the rug. Repeat the second half of the center, then the borders, then the heading and then the fringe. If there are several rugs to be woven on the same color of warp do not take them off until all that color warp on the beam has been used. It is more economical to use up the entire warp that has been beamed. When all the rugs have been woven they can be taken off the cloth beam and finished by knotting the fringe at each end.

APPROPRIATE DESIGN

A few general principles of design may be applied to the Colonial rag rug, and only very simple designs are suitable for this style of fabric for its construction is simple. In the Colo-

nial rug the most noticeable feature of its construction is the crossing of the warp and woof threads and the effect in general is that of cross lines. Therefore any design made of cross lines or bands is suitable. Study carefully the proportion of the bands to the center. Do not attempt to weave in ornamental figures. They are totally out of harmony with the construc-



Section of Colonial weaving and "crow's-feet pattern."

tion of the rug, for in order to make ornamental patterns pieces of woof must be cut and laid on over the original woof thus doubling it at certain points. The extra thickness makes the rug wear unevenly and detracts from its serviceable qualities.

Certain ornamental features may be introduced without disturbing the construction of the rug. Twists may be made of woof threads

and woven in the rug give the effect of what is known as "crow's-feet." These are also called arrow-heads. These are in harmony with the technique of the rug.

Centers for Colonial rugs may be made of small pieces of cloth sewed together in a hit or miss style. These give a contrast to uniform borders. Dark and light bands may be used with centers of medium tone. The rugs may also be woven without a defined border; sometimes a few broken cross stripes are effective.

SOME PLANS FOR A COLONIAL RUG

In Buff and Brown: Sixteen yards of unbleached muslin are required to carry out this plan. Twelve yards must be reserved for the buff and four for the brown. The buff must be dyed by the recipe for iron buff given in the chapter on the needle-woven rug; and the brown must be dyed with catechu given in the chapter on the crochet rug.

Use brown warp for this plan and set your loom for yard-wide weaving. Make a heading of the brown warp thread used as woof, follow this by six inches of solid buff, then twists twice across for buff and brown making the crow's-foot pattern. This should be followed

by four and one-half inches of solid brown. Then twice across again with twists of buff and brown and twenty-seven inches of solid buff which all together makes half of the entire rug measure. Begin now and repeat these measurements backward; first the twenty-seven inches of buff and go on until the heading is reached. The size of this rug is three by six feet. Leave about four inches of warp thread for a fringe at each end of the rug. This fringe should be knotted into groups of six threads each after the rug is taken off the loom.

In Gray with Mixed Border of Black, White, Red and Dark Blue: The amounts of material for this plan needed are thirteen yards of unbleached muslin, one reserved for the white and twelve yards to be dyed gray with tannic acid over iron buff by the recipe given in the crocheted rug. Two yards of commercial turkey red muslin and four yards of plain dark blue cambric and one of black are needed. If commercial materials are used they should be all washed before tearing into strips for weaving.

Use a plain unbleached warp or a multi-colored carpet warp for this plan and set up the loom for yard-wide weaving. The size of the rug is three by six feet. Begin by making one

and one-half inch heading of bright red warp, two inches gray, twists twice across to make crow's-feet in black and white, two inches turkey red, four and one-half dark blue, two red, twice across with twists of black and white, this with twenty-four inches of solid gray complete one-half the rug. Repeating these counts backward beginning with twenty-four inches of gray and going on to the heading of one and one-half inches bright red warp, complete the entire rug.

SOME APPLICATIONS

CHAPTER X

SOME APPLICATIONS

IN developing these old-time methods many other problems in handicraft are suggested, though not actually worked out. For instance, by knowing how to stencil the burlap foundation in the chapter on the hooked rug, one can make all manner of attractive and useful couch covers, cushion covers, and curtains. The dye recipes may be used on fabrics in different ways for experimental purposes. Silk scarfs can be dyed in fascinating colors with the recipes for wool dyes, for dyes which dye wool will also dye silk. Indeed in the dyeing of useful things there is no end. The home dressmaker and milliner will find that odds and ends of silk and ribbon, feathers and laces, which need refreshing or a change of color can be dyed at a saving of expense and temper, especially when the commercial dyer has promised to match something exactly and has just as exactly failed. Then too the work can be done at home and at

once. There need be no waiting for a week or more for something that is needed in a hurry.

Suggestions for pillows, table covers and mats are found in the chapters on the knitted and the crocheted rugs. The processes used in the needle-woven rug and in the Colonial rag rug make interesting textures for furniture covers, hangings and portières. Indeed I might go on suggesting many new forms to which to apply these methods but it is much more interesting for each handicrafter to discover and develop them individually. Two heads are better than one and some entirely new process might be originated by carrying out some application especially appealing to each worker. The now familiar processes developed and used by the modern handicrafter grew in this way out of the pioneer handicraft of Colonial days.

Two methods which have been fully developed in this chapter and applied to special problems are the reserved bedspread and the stenciled oilcloth. The reserved bedspread is dyed by the same process used in the chapter on the knitted rug. The stenciled oilcloth is a revival of an old and practical application of stencil-craft.

The Reserved Bedspread: This novel and effective bedspread is made by the process

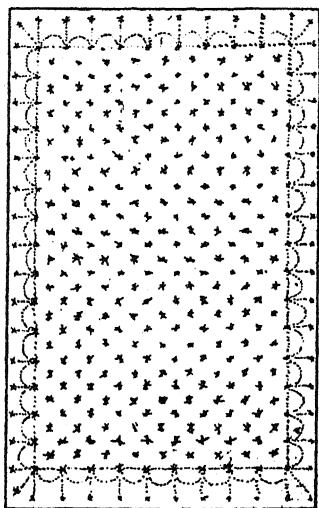


EXAMPLES OF RESERVE PRINTING WITHOUT
A WAX RESIST

called "printing by reserve." A process which besides having been used by our great great-grandmothers in Colonial times to shade their knitting wool, has been used from time immemorial by the natives of many eastern lands. The Indians of Asia, the Chinese, the Japanese and the Javanese used it and still use it to-day. The idea in this method is to make the pattern by tying up certain portions of the cloth so tightly that the dye cannot penetrate it. A piece of cloth is pinched together and wound around with thread. Sometimes a stone or a pebble or a child's marble is tied up in the cloth. The fabric is then dipped in the dye and on untying the thread, a characteristic ring appears in the color of the original cloth.

The material needed for making this reserved bedspread is two and one-half yards of coarse, unbleached cotton sheeting two yards wide. Hem the ends with as narrow a hem as possible, either a rolled hem or a napkin hem. Divide the whole piece into six-inch squares and mark off the squares with blue marking chalk. An easy way to do this is to mark off the side and ends at the edges at intervals of six inches and then draw lines across the cloth from side to side and end to end. A yard stick makes a convenient ruler for making

straight lines and can be slipped along as the line lengthens. After the cloth is all marked off, begin and tie up small pebbles or marbles as the case may be at every point where the lines or the squares intersect. Also



The plan for reserve bedspread.

tie one pebble in the center of each six-inch square. After the pattern is all tied up it looks like a rather curious jumble, but on untying, the effect is most interesting.

Dip the spread before it is unwound into the indigo bath or into any one of the dyes recom-

mended in the book, using of course only dyes for cotton. Indigo is a serviceable color but if one has no vat, then the sulphur blue can be used recommended in the chapter, a word about dyes.

Any dye can be applied to this process either an oxide as is the case in indigo, iron buff, or manganese brown, or a dye which requires boiling. If tightly wound even in protracted boiling, the dye will not penetrate the protected or reserved portions. Besides spreads, curtains, cushions, couch covers, even kimonos and scarfs may be made attractive by this method.

In carrying out designs where line and spot are used, use bird shot for indicating the line and marbles or stones for the spots or larger rings.

The Stenciled Oilcloth: This is most serviceable and suitable for a bathroom in a country house or for any room where the boards are old and worn and one does not wish to lay a parquet floor. The material needed is a closely woven piece of burlap or canvas. Canvas is the better material to use. The piece of material should be the size of the entire floor with an allowance made for a half-inch hem all around. The seams must be sewed together

after the manner of boat sails, by lapping the selvages about a quarter of an inch and sewing along the edge of each selvage. The seams should run in the same direction as the boards in the flooring of the room, as they are apt to wear out less in this way. The outside edges of the piece of canvas must be hemmed by turning under once and sewing on the machine.

Clean the floor thoroughly and let it dry, then fill up all the large cracks and holes with putty. Let the putty harden. Then give the floor a coat of paint for priming. Any coarse barn paint will do. Paint the floor in sections and as the sections are painted lay down the canvas while the paint is still wet, stretching it and tacking it at the same time to keep it flat. After the canvas has been laid on the wet paint, let it harden a day or two. Then give the canvas itself a priming coat of white lead or some heavy gray paint. Let that coat dry. Three coats will be needed to make a good job. Gray deck paint is the best to use and it can be colored by adding powdered color or by paint ground in oil.

After the last coat is so dry that it can be wiped off with a wet rag, apply either of the stencils as borders along the edge of the room. The last coat must be thoroughly dry before the

stencil is applied, as a dry surface can be easily wiped off if a mistake is made.

Stencil No. 1 shows the swan and wave motif used as a border. It can be applied in cream and medium blue on a background of



Stencil No. 1.—Swan and wave motif.

medium green or gray. The figures representing the swan must be stenciled in the cream tone. The waves in the medium blue. It can be also used on a light blue background with the same colors. The lotus pattern or stencil No. 2



Stencil No. 2.—Lotus motif.

can be applied with these same color schemes which are especially suitable for a bathroom. Stencil No. 2 can be used as a border or as an allover pattern. As an allover pattern surrounded by an outlined square it has an effect

of tiling. A floor covering made in this way will outlast an ordinary oilcloth, and last as long as an expensive linoleum, standing many years of rough wear. It is the same method used on the deck of vessels and yachts, and is thoroughly waterproof and dust proof. These same stencils may be applied to pieces of one toned linoleum or even grass-cloth and make attractive bathroom mats.

**NEWER METHODS OF STENCIL
MAKING**

CHAPTER XI

NEWER METHODS OF STENCIL MAKING

THE making of stencils would be an easy matter were it not for the difficulty of getting good and original designs, and in carrying them out through the medium of a heavy stencil paper. Because stencil paper is hard to cut, it is a serious handicap, and compels the craftsman to use commercial patterns or to cut patterns of an elementary kind. But as there are many justifiable uses for attractive stencils, it is worth while to find a way by which good and original designs can be more easily executed.

The Japanese have overcome the technical difficulties of stencil cutting by using a preparation of shellac on their fibrous paper. This preparation is said to be a mixture of resinous gums and the juice of the persimmon fruit. Probably few of the gums are native to this country and at any rate the Japanese formula is not known here. We can, however, use a similar process which will also do away with

the resistance paper has for the stencil knife.

The best kind of paper to use in stencil making is pliable, thin and tough. The thinner, the better, for then the stencil lies close to the cloth when the pattern is printed. It must be tough and pliable, or it will break and bend. In the process described here the resistance of the paper fiber to the knife is destroyed by clearing the paper with melted paraffin, and results very similar to the Japanese are thus obtained.

MATERIALS NEEDED

Materials needed for newer methods of stencil making are: Two yards of commercially prepared blueprint paper; three dozen sheets of good quality Japanese drawing paper; one-half dozen sheets of white blotting paper; one stencil knife; one shaving brush, price ten cents; one piece of thick window glass size 24 x 24 inches; one drawing board, size 26 x 26 inches; one cake of paraffin; one tube of yellow ochre, artist's color; one pint of denatured alcohol; one ounce of rosin; two ounces of dry yellow shellac; one pint of benzine; one bottle of liquid bluing.

PLANNING THE DESIGN

In stencil-making the design does not grow out of the method to the same extent it does in other crafts. For example, in the various kinds of rug-making, decorative features develop and are controlled through the use of certain materials. In stencils there are only two features which come under the head of technical limitations. One is the simplification of the design through cutting, the other, the use of the ties which hold the stencil together. In stencil craft as in other methods the restrictions give it its individuality but as they are few the method must be controlled by a carefully planned design.

The first step in making a design for stencil is the selection of a subject. The problem is what to use and how to get it into shape for decorative application. As the method in this craft does not dictate the type of motif, the worker has an unusual degree of freedom in its selection.

There seems to be a general superstition that design to be excellent must be predigested. It must first have been sifted through the medium of some one else's mind. But why? All good

design was originally suggested by some fact or phase of animate or inanimate nature. Then why not go at once to nature, and have the real enjoyment of selecting at first hand a subject which is pleasing to one's self? Motif for decorative treatment chosen in this way is more vigorous and convincing.

Two factors go to the making of a design: the development of the unit and its arrangement. A grape leaf has been selected as a unit for composition and the steps of the process are as follows:

Select a number of leaves of plants or trees and put them aside in water until they are used. It is wiser to gather several different kinds of leaves to use in the making of the shadow prints from which the designs for the stencils are to be made.

Cut a piece of blueprint paper twenty by twenty inches. Take the drawing board and lay two thicknesses of blotting paper on it. On these lay the piece of blueprint paper face down. The face of the paper is easily distinguished, because the preparation used in making blueprint tones the sensitive side to a yellowish color. Now on the back of the blueprint paper lay a number of leaves and press them out a little so that the thicker parts will lie closely

to the paper. Place the leaves in rows leaving at least three inches between each row and between each separate leaf in a row. Make all these preparations in a darkened room for blue-print paper is sensitive to light and if exposed, its printing qualities will be destroyed.

Place the window glass over the leaves and then put the board with the leaves and glass in the full sunlight to print for at least twenty minutes. The unprotected paper will darken in sunlight and the protected part which is covered by the leaves will show a white print, after it is washed. After the paper has been the required length of time in the sun, hold it under running water and the print of the leaf will appear on its face. Wash the paper thoroughly or until no more of the yellow solution can be seen in the water. Then put it away under something heavy to press and dry. After it is dry, cut apart the print of each separate leaf. They are now ready to be made into units for stencils.

MAKING THE STENCILS

After cutting apart the prints lay them on the drawing board and pin them down. The leaves from which the prints are made should be saved. Take them and examine them with

a view to finding out which are their most important ribs. The illustration of the grape leaf shows how it has been treated. There is always a midrib in every leaf and most always two important side ribs. Every leaf has a characteristic construction and this construction will be emphasized by picking out and using the main ribs. They are in reality the bones of the leaf.

By soaking a leaf in pure vinegar the vegetable matter will disappear and the network of ribs be left intact. This network of ribs can be used as a guide in the decoration.

After carefully determining which are the most important ribs draw them in on the shadow print with a soft pencil. The print has been made in outline only, there is no detail. Take the cake of paraffin, scrape it fine and sprinkle the scrapings as evenly as possible over the prints which are pinned on the board. Having heated a flatiron, pass over the face of the print until the paraffin is all melted and the print is "cleared." When the print is cleared it sticks closely to the board and becomes transparent. There should be no air bubbles underneath.

Now the stencils can be cut, for the hardened paraffin removes the fibrous quality of the paper and the knife slips along without difficulty.

First cut out all the spaces between the ribs. But do not cut through any of the ribs. Be careful not to let your knife slip. The pieces of paper left for the ribs will form the ties of the stencil. They hold it together and its strength depends on them. In general, the best place to cut the ties in any stencil is where an interruption in the line would naturally occur. For instance, at a joint of a stem or where one form crosses another. Do not make long, narrow cuts. They weaken the stencil. When the cutting is all done, heat the flatiron and press over the face of the print. As the paraffin melts lift the stencil carefully from the board. If it sticks in pulling off the paper, iron it over again and lift off the heated portions carefully. After the stencil has been taken from the board, lay it on blotting paper and give it a final pressing with the iron. This is to remove any remaining wax.

The yellow shellac should already be dissolved in denatured alcohol with a small piece of rosin about the size of a hazel nut. Rosin adds elasticity to the varnish.

Remove pieces of cut paper from the stencil, lay it down on several thicknesses of newspaper and varnish it with shellac. Let one side dry before shellacking the other side.

Each side should receive three coatings of varnish. When the stencil is shellacked put it away for a while to harden. It is a good plan to hang it on a nail.

MAKING ARRANGEMENTS WITH UNITS

In a general way design is the breaking up of surfaces into harmonious intervals of space. The most useful type of design for ornamental articles of home decoration and wearing ap-



Stencil of grape
leaf unit.

parel, can be arbitrarily classed as borders, allover patterns and composite units. They are arrangements of the single unit within certain spacial limits. Borders are arranged between parallel lines as linear ornament.

Allover patterns are arranged by placing the units at regulated intervals all over a given space. The composite unit is an ornamental spot used to emphasize certain positions. Borders are used as a surrounding edge to frame in any given space to mark its limits as it were in an ornamental manner. These arrangements are useful in the decoration of couch covers, curtains or table covers. In fact for anything that needs an ornamental edge.

Allover arrangements can be either a connected pattern or spots placed at regulated intervals over a surface. They are useful for ornamenting the center spaces of table covers, curtains and other draperies. They can be used in combination with borders.



Spot arrangement.

Spot arrangements or composite units are the single unit placed in groups of three, four, five or six as the case may be. They are useful in ornamenting sofa cushions or centerpieces. Circular borders make attractive decoration for lunch cloths or circular table covers.

The arrangements classed in this way are necessarily restricted to a more or less formal type of decorative composition, but they are

none the less useful in house decoration because of this restriction.

Take a piece of unbleached muslin and print the stencils of each one of the units on it. Use the liquid bluing for this purpose. If there are any defects in the stencil they will show up in the print on the muslin, and it may be corrected by more cutting. Lay the stencil down on a piece of window glass to cut it. There is usually a tendency to leave too much paper in the stencil so that the design is not clearly defined. If this is true then more of the paper must be cut away.

The shaving brush should be cut down to half its original length. Stencil brushes are more convenient with short bristles.

Take two pieces of Japanese drawing paper and lay them down on the board pinning them in place with thumb tacks. This is done because the blueprint paper is brittle and cannot be used as a permanent stencil. The fibrous Japanese paper is serviceable when prepared with paraffin. Select any one of the stencil units and measure its width and length. Draw these measurements on the Japanese paper; you are preparing construction lines for a border of these dimensions, and the space enclosed between them is the width of your border. Now

mix up some yellow ochre paint in a saucer with benzine. Do not make it too moist for then it will run when the stencil is printed on the Japanese paper. Now place the stencil unit between the lines of the border and brush over it with the ochre. Repeat these prints, one-quarter of an inch apart until there are five or six in succession. Place the unit always in the same position. The illustration shows how the



Border of grape leaf units.

grape leaf has been placed between the guide lines. The successive prints of the stenciled unit make a section of border.

This section of border printed on the Japanese paper is to be made into another stencil. It must be treated in the same way as the original print. That is, by waxing it with paraffin, ironing it and cutting it. Only the portions which are printed in the ochre are to be cut out. The uncolored portions which are the ribs will be left as ties as before. If a stencil seems too

fragile, get a piece of unbarred mosquito netting and brush it over the back of the stencil with shellac; lay the mosquito netting on it. It will stick fast to it and should later receive another coat of shellac. When dry the net holds the fragile parts of the stencil together, and makes an attractive background effect when the small squares of the meshes are



Allover arrangement of units.

printed. The allover arrangement and the spot arrangements should be treated in the same way. For allover patterns draw the guide or construction lines on the Japanese paper in either square or diagonal arrangements. Be sure to measure the stencil carefully in order to have room for the placement.

There are a few oil colors which will stand washing if carefully handled. Prussian blue,

burnt sienna, and yellow ochre are the most serviceable. Blue and white combinations can be made on cotton cloth or linen. Burnt sienna can be used in combination with natural colored burlap or on Russian crash. Unbleached cotton cloth dyed by the processes recommended in other chapters, can be successfully combined with these oil colors. Interesting and unique effects can be obtained by using backgrounds shaded by the process mentioned in the chapter on the knitted rug.

THE TUFTED COUNTERPANE

CHAPTER XII

THE TUFTED COUNTERPANE

THE tufted counterpane of to-day like most modern handicraft is a Colonial survival and has a historical as well as an artistic interest.

Some fine examples are to be found in the National Museum at Mt. Vernon, Virginia, which was formerly the home of George and Martha Washington. There the counterpanes still cover stately four posters in the bed-chambers. They are in perfect condition and a good recommendation of the methods and skill of the earlier worker.

As these counterpanes make charming coverings for wooden bedsteads it is astonishing they are not more widely known. They are sometimes made of dimity but the most attractive are made of unbleached cotton cloth because of the delightful contrast between the ivory tone of the cloth and of the pure white thread used in the tufts.

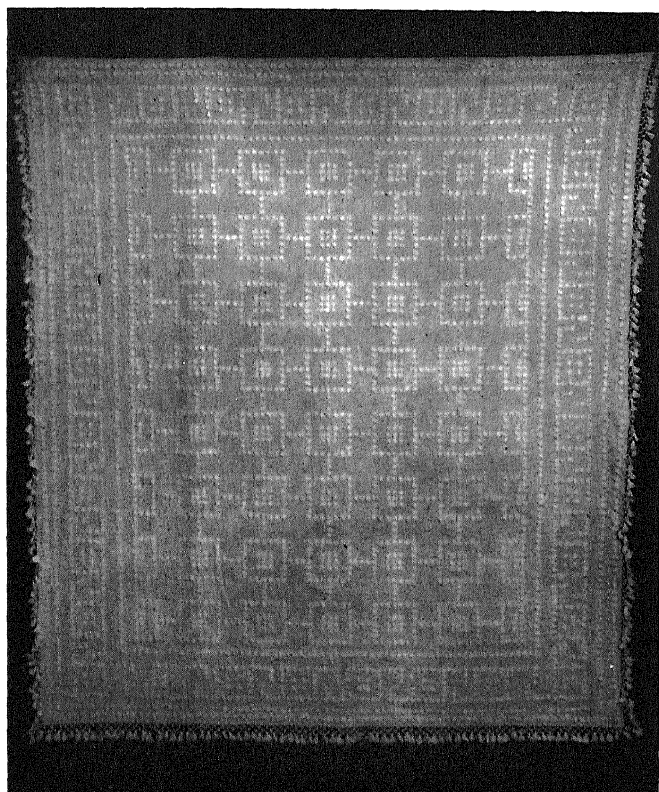
MATERIALS NEEDED

For a full width counterpane, two and three-quarters yards of muslin is needed, two and one-half yards wide. The muslin may be either bleached or unbleached. If the bleached is used the linen finished muslin is the most satisfactory.

Take pure white knitting cotton, Dexter's No. 6 for making the tufts. The pattern in the illustration requires two dozen balls. Use No. 1 darning needle. Besides these materials get a bottle of liquid bluing, two yards of heavy stencil paper, a small quantity of laundry starch, a small stiff paint brush and a harness punch.

MARKING THE PATTERN

In Colonial days the method used for marking straight lines on the tufted counterpanes was known as "snapping a string." Two people did the marking with a piece of string, wet with colored starch or rubbed with colored chalk. Each held an end in position over the muslin just above where the line was to go. Stretching the string very taut and letting go of it, simultaneously, snapped it against the muslin, marking a line of any desired length.



A TUFTED COUNTERPANE MADE OF UN-
BLEACHED MUSLIN WITH PURE
WHITE TUFTS

For circles of different sizes, lines were drawn around the edges of plates, saucers and goblets. By these simple means a geometric style of pattern was produced, which could be carried out appropriately through the medium of the tufts, these being placed at stated intervals along the lines.

Sometimes more elaborate figures like the old-fashioned palm leaf were used. These were cut out of thick cardboard and the outline drawn around them on the muslin with colored chalk.

But while these methods are interesting the stencil is a more up-to-date and practical means of marking counterpanes. A section of the design, usually one-fourth, is drawn on the stencil paper, and holes placed at stated intervals, either one inch or one-half inch apart are punched out with the harness punch. When the stenciling is finished the dotted pattern appears on the muslin. The dots indicate the position of the tufts to be carried out with thread on the counterpane.

Rub the stencil paper with boiled linseed oil before punching out the pattern. This makes a cleaner edge and preserves the paper against the wet starch when it is rubbed over it.

For stenciling the pattern on the counterpane

mix raw starch with the liquid bluing. Do not have the paste too wet, it rubs through the holes in the stencil quite easily.

TUFTING THE COUNTERPANE

The muslin for the counterpane has already been hemmed and tautly stretched in a quilting frame for the marking. The hems should be either rolled or a narrow napkin hem be used. If a quilting frame cannot be found a curtain frame will answer the purpose. Never wash the muslin until after the counterpane is tufted, for the tufts of cotton are held in place by the shrinkage of the cloth. This is the same method used in the hooked rug where the cloth strips are crowded in between the meshes of the burlap foundation and also held in place by the pressure of the surrounding cloth.

Two sized tufts are used for ornamenting the counterpanes. A full-sized tuft made of twenty-four threads each, and a half-sized tuft of half that number. The full-sized tufts are placed one inch apart, the half-sized, one-half inch.

Fill a darning needle with a double thread and make a stitch one-eighth inch long under any of the stenciled dots of the pattern.

Draw up the thread at each end of the stitch on the surface of the counterpane. Crowd three stitches into the same needle holes. Each stitch has two ends and these ends should measure three-fourths inch in height. Three stitches make two tufts of thread of six threads each. Do not cut the thread, use a continuous thread making loops except at the beginning and end of each group of threads. Now cross these stitches at right angles with three other stitches of the same length and size and a tuft of twenty-four threads will be formed. Do not cut the loops of thread in the tufts until all the tufts are finished. Then trim them down to one-half inch in height.

After the counterpane is tufted, shrink it by washing it in very hot water. Do not press it with an iron, hang it out to dry stretching it and pulling it into shape before it is absolutely dry. Do not comb out the threads in the tufts. They will fringe out through washing and usage.

THE FRINGE

The tufted counterpanes are usually finished, like the one in the illustration, with fringe on three sides.

It is made of buttonhole stitches and the same

kind of cotton is used as for making the tufts. The first row of stitches is caught along the edge of the counterpane at the hem, and they are set one inch apart. The stitches should not be drawn up tightly, as they are to form a series of loops into which the next row is to be caught. There are three rows in all, the second row is caught into the center of the loops of the first row and the third row into the center of the loops of the second.

The fringe is ornamented with French knots at the point where one loop is caught into the other, and it is finished with small tassels.

OLD-TIME LIGHTS

CHAPTER XIII

OLD-TIME LIGHTS

THE most prosaic object is not below the scrutiny of the amateur and as nothing has escaped the discerning glance of the craftsman in the search of homely things to make beautiful, why not beautiful candles, forsooth?

Most of us know little of old-time industries and nothing perhaps at all of old-time methods of lighting or of candle-making—the well-known bayberry dip or candle comprising the entire extent of our knowledge. These certainly deserve the popularity they enjoy, for what is more attractive than their mellow light and the soft sage green color of the wax which harmonizes with the copper and brass or even silver candlesticks. But they by no means cover the entire field of candle-making. Candle is only a generic term, for there are candles and dips, likewise “long smokes” and “short smokes,” each of which is put to a special and particular use. Then there are tallow dips and candles,

for the bayberry bush does not grow in all our States and besides the tallow light is much more easily made.

The bayberry candles are made of the wax coating the berry of the bay bush growing in our coast regions and sandy soil. In the late fall when the berries are ripe they are gathered and the wax is removed by putting them into boiling water. The wax floats and when the water cools, it hardens and can be easily skimmed off.

The day set aside for dipping candles must be solely devoted to that enterprise, for once begun there is no leaving off until done. If short smokes or lantern dips are to be made then the candle wicking is cut off in length of six inches. Each piece of wick is looped over a thick wooden knitting needle which accounts for the characteristic double wick at the lighting end of a bayberry dip, for the loop made by doubling over the knitting needle is cut and stands up in two ends.

The wax or tallow, as the case may be, is melted and poured into a kettle of boiling water. This is usually a big brass kettle of five or six gallons in order to give a large surface for floating the wax at the top. The kettle is placed

on a board heated for hours in the oven. When the dipping begins each knitting needleful of wicking gets a bath in the kettle of hot wax and comes out coated. Each coating must be allowed to dry perfectly before the next coating is laid on, otherwise the unequal contraction of the wax will cause the dip to crack.

Mutton suet is used for tallow dips. Brook mint or spearmint is boiled with the suet to mitigate the odor of the tallow. It gives a faintish green color to the candles which are called spearmint dips.

Making candles with molds is a much simpler process. That is, if one has succeeded in getting a set of old candle molds. These molds come in sets of twelve. They are wrought iron tubes fastened together and narrowing to a point at the top where the wick is threaded in. The molds are filled with wax or tallow, which shrinks as it cools so that the hardened candle can be readily drawn out. Molded candles are not as attractive as the handmade dip. But they are more desirable than the artificially colored bayberry candles made for commercial purposes.

Another use for bayberry wax is the little bayberry ironing bag. The berries are gath-

ered and a small bag of white cloth is filled with them. These bags make a charming little present to accompany a set of electric or denatured alcohol sadirons, such as are found in a traveler's kit.

**BATIK-MAKING AND OTHER METHODS
OF RESIST PRINTING**

CHAPTER XIV

BATIK-MAKING AND OTHER METHODS OF RESIST PRINTING

THE somewhat recent introduction of the Javanese and the Dutch method of wax-resist printing or batik-making is already proving a valuable addition to our established branches of handicraft and promises to become more important as it becomes more widely known.

The word "batik" which is unusual and always attracts some curiosity, comes from the Javanese and means "printing in wax."

In fact, batik-making is a method of printing fabrics by a process of wax resists and the process of wax-resist printing or as it is sometimes called, reserve printing, is the method of protecting certain portions of a piece of cloth from the coloring matter in the dye vat when the cloth is dipped.

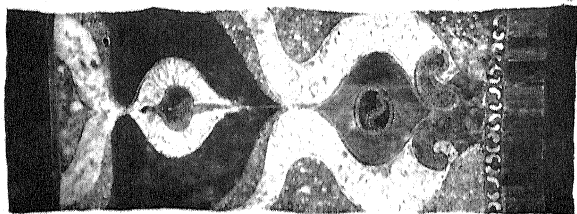
The wax is melted, and deposited on the surface of the cloth. The hot resist thus thoroughly penetrates the fiber, protecting from the dye the portions it covers.

The wax resist is of course, always laid on in a design or pattern. When it has been finally removed, the pattern appears on the surface of the cloth and is properly called a "reserve."

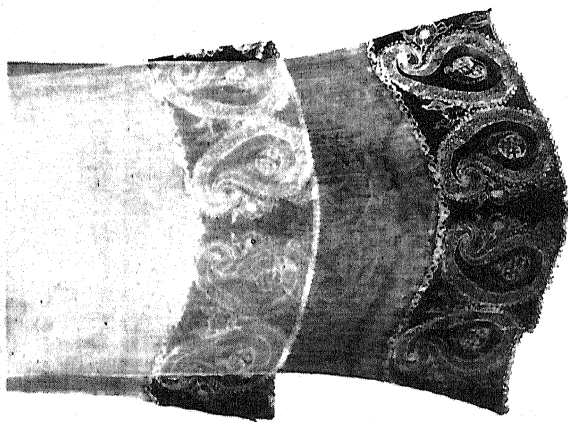
Batik-making is a craft almost free from technical difficulties, and for this reason is especially adapted to the use of the amateur craftsman. There is indeed scarcely another method by which so many useful and beautiful objects of home decoration can be as easily made.

Batik can be applied to all kinds of material but on some with better results than on others. For instance, silk and cotton are the most easily handled. Next would come leather and last of all, linen, because in the dyeing of linen there are certain technical difficulties. Wool is never used in batik-making.

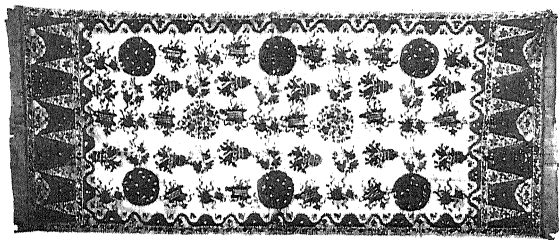
The modern Dutch batiks are technically very perfect but are not always pleasing from the designer's standpoint. They often fail from inharmonious color arrangements. The Dutch handicrafters apply batik to silk and velvet. They handle velvets with great skill, for this fabric presents more difficulty than almost any other on account of the nap. Dutch silks and velvets are used for making all articles of wear-



A MODERN
BATIK



CHIFFON SCARF DYED BY BATIK
PROCESS WITH ACID DYES
IN FIVE COLORS



A JAVANESE
SARONG

ing apparel and are used also for interior decoration.

Through their possession of the Island of Java, the Dutch got their intimate knowledge of the craft of batik-making. The native Javanese are masters of this craft. "Sarongs" or native loin cloths are made of light weight cotton, a material specially well adapted for the process of wax-resist printing, as the hot wax penetrates the fiber freely and easily. Cotton can be dyed beautiful and permanent colors, and moreover it gets an unusually beautiful texture from the handling necessary in the dye process. The texture it finally acquires through the application of dye and the wax resist, has somewhat the effect of velvet in color quality and tone. Where the original color of the unbleached cotton appears in any pattern, it has the look of old parchment. This is because the wax of the resist is never completely removed from the fiber of the material and adds depth of tone to its color and texture.

The sarong in the illustration is a wonderful example of the art of design and the dyer's craft. In most all Javanese batiks, the design is purely abstract and dependent on its beauty for the relation and arrangement of the line and mass.

However, the type of design applied to batik may be either representative or naturalistic as it pleases the designer. Like the stencil the pliable technique of batik offers few obstacles in the carrying out of any kind of detail. Indeed, in some instances, textures can be reproduced; on general principles, however, it is well for the beginner to restrain a desire for naturalistic ornament, and to try at first for the simpler effects obtained by the wise use of mass and line arrangements.

There are certain features of batik which, so to speak, have grown out of the manner in which it is made. The sarong shows one of these—a network of fine lines throughout the background. This network is caused by the crackling of the wax resist, as it dries and shrinks, or when the cloth is wrinkled or bent. One can see that the network of lines is thickest where the cloth has been most bent, that is, where it has been hung in the center over a pole to dry the wax. The color in the dye vat gets into these cracks and penetrates the fiber of the cloth when it is dyed. This leaves a print of cracks or wrinkles when the wax is removed. This is the most decorative and characteristic feature of the batik, and under the guidance of the wise designer can be used with effect, in-

stead of just being a more or less unhappy accident.

The tools and materials for batik-making are simple: Beeswax, paraffin, and rosin, are used for making the resist. Denatured alcohol is needed for the spirit lamp to heat the wax, and benzine for cleaning the wax resist from the batik. The little instrument used as a container for the hot wax is not unlike a small copper teapot with a long handle. It is called a "tjanting" by the Javanese. These tjantings have spouts or tubes for conveying the hot wax resist. And these tubes are of various sizes regulated for making fine or coarse lines. This little instrument can be made by any metal worker or skilled tool maker. It is wisest to make it of thin sheet copper, because it is then lighter to hold and heats more easily. The Javanese make their tjantings also of copper using bamboo for the handle.

All the line work of design can be done with this tube. Large masses or spaces, however, are more easily filled in with very hot wax and an ordinary paint brush.

A small spirit lamp, a tripod to hold the wax receptacles and several small enamel bowls, complete the equipment for wax-resist printing. A spool of copper wire might be added because

it is convenient to use a piece of it in clearing the spout of the tjanting. Even after the wax is carefully strained, particles of dust are apt to get into the tubes and interfere with the free flow of the wax.

The different kinds of fabrics, cotton, silk and linen, each call for individual treatment, which in each is determined by the character of the fiber of which the fabric is woven. These treatments are carried out by mixing the resist of different proportions of wax, paraffin and rosin and by using different degrees of heat in application. The paraffin assists the crackle in the resist. And the rosin helps it to adhere to the fiber.

For drawing on silk where a clean, unbroken line is needed, pure beeswax moderately heated should be used. Silk is more easily penetrated by the hot wax resist than other materials and requires careful handling.

In order to keep the wax resist at a moderate temperature, pure beeswax should be cut up, melted, and strained through a piece of fine cambric into one of the small enamel bowls. The bowl itself should be kept hot in another and larger bowl of boiling water. The hot wax can be dipped out of the bowl with a spoon or if the vessel has a spout, poured into the tjanting.

Do not on any account when drawing on silk, fill the pot itself with unmelted beeswax, and then hold it over the spirit lamp to heat. The Javanese purposely make their tjantings with the bamboo handle extending out under the base of the metal container, so that it cannot be held directly over the flame without injuring the handle.

If a crackled or broken line is needed, add one-half paraffin to the beeswax. The kind of line used in batik should correspond to the character of the applied decoration. If this is unconventional or naturalistic a crackled or broken line is appropriate. If the design is formal or abstract a clear and distinct line should be used. It is then that great care must be taken with the temperature of the wax resist. Very hot beeswax flows quickly through the spout of the tjanting and spreads unless carefully guided. Then drops of wax are apt to form at the end of the tube and unless watched will fall off, and spot the fabric.

For backgrounds on silk where a crackled effect is desired, a mixture of half beeswax and paraffin should be used and a little rosin added. Sometimes a purposely crackled background can be effectively combined with spots and figures which have no detail.

On fabrics of the nature of heavy linen and on cotton or velvet, beeswax should be used very hot for beginner's experiments. Until the possibilities of the wax-resist process are more perfectly understood, it is always safe to use clear beeswax for it ensures with less skill a more even line.

After the wax resist has been applied to the material, it is left to dry and harden. It can be then removed by one of two processes. If the reserve has been made on silk it is removed by dipping in a bath of benzine. Benzine dissolves paraffin, beeswax and rosin, and whatever remains can be pressed out of the silk with a moderately hot iron over blotting paper. On velvets the nap must be raised. If it is in small pieces, this can be done over the tea-kettle, but if in larger pieces, it had best be taken to the commercial dyer. Boiling with hot water and laundry soap will remove resist from linen and cotton.

The treatment for leather is the same as for other surfaces except that in general, a broader and freer line may be used. On leather the crackle of the batik is most effective. Great freedom too, may be used in the matter of design, especially for screens and wall hangings where more or less naturalistic motif may be

decoratively treated, and where textures may be reproduced.

DYES FOR BATIK

Probably the most satisfactory colors for dyeing batik on linen and cotton are those dyes among the natural and artificial pigments which are set by oxidation. The advantage of these dyes is that they can be used in a cold dye bath which does not destroy the wax resist.

Among the natural pigments indigo comes first of all and is most important. The vat method for cotton, linen and silk, is recommended in chapter on knitted rug.

Iron buff in chapter on needle-woven rug is a permanent and beautiful yellow dye.

Iron gray another oxide is recommended in chapter on crocheted rug. There are two good browns: permanganate of potash, a mineral dye chapter on needle-woven rugs and catechu in chapter on crocheted rug.

Among the artificial dyes are the artificial indigos. These are not very satisfactory as they are rather difficult and expensive. Their one advantage is that they are the only series of artificial dye products which produce a permanent red dye on silk, linen, and wool.

The most satisfactory of all the artificial dye products are known as the sulphur dyes. Of these the blacks, grays and yellows, are the most satisfactory. The blues and browns can be used but are somewhat crude in tone.*

The methods for procuring more than one color on cotton and linen with batik are limited but the results interesting, when obtained. With indigo for instance one may get a blue and white reserve. From this a green and yellow combination may be developed by green- ing over the indigo with the vegetable dye, quercitron. The wax must be entirely removed. The batik mordanted with the proper mordant and then boiled in the quercitron bath. Indigo with the white reserve may be successfully redyed in catechu giving reserves of blue and brown or with blue, white and brown. Blue with yellow by first dyeing the white reserve, may be obtained with indigo and iron buff. The worker will discover many interesting combinations, as soon as the work begins to progress.

By the method of floating in acid dyes on silk, any number of colors may be produced in one design. This is a practical method for making pattern on lampshades, scarves and gowns.

* Pellew's *Dye and Dyeing*.

The chiffon scarf is made by this method and it has five colors. Orange, red, blue, green and black. Begin this process by transferring the design on white or raw silk.

Take a piece of rather thick window glass, fourteen by twenty is a convenient size, and rub lightly over the surface with a piece of hard soap. The soap will prevent the resist from sticking to the glass. Now lay the silk down on the glass and cover all the line of the design with the wax line. If a stencil is used its outline may be followed by keeping the tube of the tjanting close to the edges of the cuts. Do not fill up any portion of the design except the outline. Each design should be outlined first so that when the glass is put in the larger masses cannot spread between the outlines. The cold wax of the outline holds in the hot wax, and keeps it from running over the edges into the other spaces of the design.

After a design is outlined, fill in all the spaces of it with hot wax using a small brush for this purpose. If the design is very fine, the spaces may be filled in with the tjanting.

Dip the silk in the dye bath of the color required for the background of the design. After the background is dyed, clean off the wax resist with benzine and redraw the outlines with the

tjanting all around and between all the forms of the design. This reserves a white outline all around the spots of different color in the design and also separates them from the background.

Wet the silk in warm water and mix small amounts of dry acid dye with acetic acid. Float in each color in the spaces or the design, where it has been planned to appear. Let the colors dry and then remove the wax with benzine. After removing the wax, press the silk carefully, then wash in boiling water to remove any particle of wax or color which may remain. Then dip in a dye bath of boiling water with a small amount of acetic acid. This last bath sets the colors, and if all loose particles of dye have been removed before this final boiling, the colors in the design will keep their original tone. Boiling silk in acetic acid also renews the dressing, or as it is technically called "scoop."

The treatment for batik on leather much resembles the treatment on silk, though there may be far greater freedom in the treatment of the wax drawing. Acid dyes can be used but another commercial dye product called basic dye is more practical, because more permanent.

Basic dyes can be floated in by the same method as the acid dye, after being dissolved with water and acetic acid. All the particles of dry dye must be thoroughly dissolved else they are apt to spot the leather.

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